FOREX

On-Line Manual
For Successful Trading

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CHAPTER 1
Introduction

1.1. Foreign Exchange as a Financial Market

Currency exchange is very attractive for both the corporate and individual traders who make money on the Forex - a special financial market assigned for the foreign exchange. The following features make this market different in compare to all other sectors of the world financial system:

- heightened sensibility to a large and continuously changing number of factors;
- accessibility to all traders in the major currencies;
- guaranteed quantity and liquidity of the major currencies;
- increased consideration for several currencies, round-the clock business hours which enable traders to deal after normal hours or during national holidays in their country finding markets abroad open and
- extremely high efficiency relative to other financial markets.

This goal of this manual is to introduce beginning traders to all the essential aspects of foreign exchange in a practical manner and to be a source of best answers on the typical questions as why are currencies being traded, who are the traders, what currencies do they trade, what makes rates move, what instruments are used for the trade, how a currency behavior can be forecasted and where the pertinent information may be obtained from. Mastering the content of an appropriate section the user will be able to make his/her own decisions, test them, and ultimately use recommended tools and approaches for his/her own benefit.

1.2. Foreign Exchange in a Historical Perspective

Currency trading has a long history and can be traced back to the ancient Middle East and Middle Ages when foreign exchange started to take shape after the international merchant bankers devised bills of exchange, which were transferable third-party payments that allowed flexibility and growth in foreign exchange dealings.

The modern foreign exchange market characterized by the consequent periods of increased volatility and relative stability formed itself in the twentieth century. By the mid-1930s London became to be the leading center for foreign exchange and the British pound served as the currency to trade and to keep as a reserve currency. Because in the old times foreign exchange was traded on the telex machines, or cable, the pound has generally the nickname "cable". In 1930, the Bank for International Settlements was established in Basel, Switzerland, to oversee the financial efforts of the newly independent countries, emerged after the World War I, and to provide monetary relief to countries experiencing temporary balance of payments difficulties.

After the World War II, where the British economy was destroyed and the United States was the only country unscarred by war, U.S. dollar became the prominent currency of the entire globe. Nowadays, currencies all over the world are generally quoted against the U.S. dollar.

1.3. Main Stages of Recent Foreign Exchange Development

The main phases of the further development of the Forex in modern times were:

- signing of the Bretton Woods Accord;
- constitution of the international monetary fund (IMF);
- emergency of the free-floating foreign exchange markets;
- creation of currency reserves;
- constitution of the European Monetary Union and the European Monetary Cooperation Fund;
- introduction of the Euro as a currency.

The Bretton Woods Accord was signed in July 1944 by the United States, Great Britain, and France which agreed to make the currency market stable, particularly due to governmental controls on currency values. In order to implement it, two major goals were: emphasized: to provide the pegging (backing of prices) of currencies and to organize the International Monetary Fund (IMF).

In accordance to the Bretton Woods Accord, the major trading currencies were pegged to the U.S. dollar in the sense that they were allowed to fluctuate only one percent on either side of that rate. When a currency exceeded this range, marked by intervention points, the central bank in charge had to buy it or sell it, and thus bring it back into range. In turn, the U.S. dollar was pegged to gold at $35 per ounce. Thus, the U.S. dollar became the world's reserve currency.

The purpose of IMF is to consult with one another to maintain a stable system of buying and selling the currencies, so that payments in foreign money can take place between countries smoothly and timely.

The IMF lends money to members who have trouble meeting financial obligations to other members, on the condition that they undertake economic reforms to eliminate these difficulties for their own good and the good of the entire membership. In total the main tasks of the IMF are:

- to promote international cooperation by providing the means for members to consult and collaborate on international monetary issues;
- to facilitate the growth of international trade and thus contribute to high levels of employment and real income among member nations;
- to promote stability of exchange rates and orderly exchange agreements, and [to] discourage competitive currency depreciation;
- to foster a multilateral system of international payments, and to seek the elimination of exchange restrictions that hinder the growth of world trade;
- to make financial resources available to members, on a temporary basis and with adequate safeguards, to permit them to correct payments imbalances without resorting to measures destructive to national and international prosperity.

To execute these goals the IMF uses such instruments as Reserve tranche which allows a member to draw on its own reserve asset quota at the time of payment, Credit tranche drawings and stand-by arrangements are the standard form of IMF loans, the compensatory financing facility extends financial help to countries with temporary problems generated by reductions in export revenues, the buffer stock financing facility which is geared toward assisting the stocking up on primary commodities in order to ensure price stability in a specific commodity and the extended facility designed to assist members with financial problems in amounts or for periods exceeding the scope of the other facilities.

Since 1978 free-floating of currencies were officially mandated by the International Monetary Fund. That is the currency may be traded by anybody and its value is a function of the current supply and demand forces in the market, and there are no specific intervention points that have to be observed. Of course, the Federal Reserve Bank irregularly intervenes to change the value of the U.S. dollar, but no specific levels are ever imposed. Naturally, free-floating currencies are in the heaviest trading demand. Free-floating is not the sine qua non condition for trading. Liquidity is also an indispensable condition.

A tool for people and corporations to protect investments in times of economic or political instability is currency reserves for international transactions. Immediately after the World War II the reserve currency worldwide was the U.S. dollar. Currently there are other reserve currencies: the euro and the Japanese yen. The portfolio of reserve currencies may change depending on specific international conditions, for instance it may include the Swiss franc.

The creation of the European Monetary Union was the result of a long and continuous series of post-World War II efforts aimed at creating closer economic cooperation among the capitalist European countries. The European Community (EC) commission's officially stated goals were to improve the inter-European economic cooperation, create a regional area of monetary stability, and act as "a pole of stability in world currency markets."

The first steps in this rebuilding were taken in 1950, when the European Payment Union was instituted to facilitate the inter-European settlements of international trade transactions. The purpose of the community was to promote inter-European trade in general, and to eliminate restrictions on the trade of coal and raw steel in particular.

In 1957, the Treaty of Rome established the European Economic Community, with the same signatories as the European Coal and Steel Community. The stated goal of the European Economic Community was to eliminate customs duties and any barriers against the transit of capital, services, and people among the member nations. The EC also started to raise common tariff barriers against outsiders.

The European Community consists of four executive and legislative bodies:

1. The European Commission. The executive body in charge of making and observing the enforcement of the policies. Since it lacks an enforcement arm, the commission must rely on individual governments to enforce the policies. There are 23 departments, such as foreign affairs, competition policy, and agriculture. Each country selects its own representatives for four-year terms. The commission is based in Brussels and consists of 17 members.
2. The Council of Ministers. Makes the major policy decisions. It is composed of ministers from the 12 member nations. The presidency is held for six months by each of the members, in alphabetical order. The meetings take place in Brussels or in the capital of the nation holding the presidency.
3. The European Parliament. Reviews and amends legislative proposals and has the power to adopt or reject budget proposals. It consists of 518 elected members. It is based in Luxembourg, but the sessions take place in Strasbourg or Brussels.
4. The European Court of Justice. Settles disputes between the EC and the member nations. It consists of 13 members and is based in Luxembourg.

In 1963, the French-West German Treaty of Cooperation was signed. This pact was designed not only to end centuries of bellicose rivalry, but also to settle the postwar reconciliation between two major foes. The treat stipulated that West Germany would lead economically through the cold war, and France, the former diplomatic powerhouse, would provide the political leadership. The premise of this treaty was obviously correct in an environment defined by a foreseeable long-term continuing cold war and a divided Germany. Later in this chapter, we discuss the implications for the modern era of this enormously expensive pact.

A conference of national leaders in 1969 set the objective of establishing a monetary union within the European Community. This goal was supposed to be implemented by 1980, when a common currency was planned to be used in Europe. The reasons for the proposed common currency unit were to stimulate inter-European trade and to weld together the individual member economies in order to compete successfully with the economies of the United States and Japan.

In 1978, the nine members of the European Community ratified a new plan for stability—the European Monetary System. The new system was practically established in 1979. Seven countries were then full members—West Germany, France, the Netherlands, Belgium, Luxembourg, Denmark, and Ireland. Great Britain did not participate in all of the arrangements and Italy joined under special conditions. Greece joined in 1981, Spain and Portugal in 1986. Great Britain joined the Exchange Rate Mechanism in 1990.

The European Monetary Cooperation Fund was established to manage the EMS' credit arrangements. In order to increase the acceptance of the ECU, countries that hold more ECU deposits, or accept as loan repayment more than their share of ECU, receive interest on the excess ECU deposits, and vice versa. The interest rate is the weighted average of all the EMS members' discount rates.

In 1998 the Euro was introduced as an all-European currency. Here are the official locking rates of the 11 participating European currencies in the euro (EUR). The rates were proposed by the EU Commission and approved by EU finance ministers on December 31, 1998, ahead of the launch of the euro at midnight, January 1, 1999.

The real starting date was Monday, January 4, 1999. The conversion rates are:

1 EUR = 40.3399 BEF	1 EUR = 1.95583 DEM
1 EUR = 166.386 ESP	1 EUR = 6.55957 FRF
1 EUR = 0.787564 IEP	1 EUR = 1936.27 ITL
1 EUR = 40.3399 LUF	1 EUR = 2.20371 NLG
1 EUR = 13.7603 ATS	1 EUR = 200.482 PTE
1 EUR = 5.94573 FIM	

The euro bills are issued in denominations of 5, 10, 20, 50, 100, 200, and 500 euros. Coins are issued in denominations of 1 and 2 euros, and 50, 20,10, 5, 2, and 1 cent.

1.4. Factors Caused Foreign Exchange Volume Growth

Foreign exchange trading is generally conducted in a decentralized manner, with the exceptions of currency futures and options. Foreign exchange has experienced spectacular growth in volume ever since currencies were allowed to float freely against each other. While the daily turnover in 1977 was U.S. $5 billion, it increased to U.S. $600 billion in 1987, reached the U.S. $1 trillion mark in September 1992, and stabilized at around $1,5 trillion by the year 2000.

Main factors influence on this spectacular growth in volume are indicated below.

For foreign exchange, currency volatility is a prime factor in the growth of volume. In fact, volatility is a sine qua non condition for trading. The only instruments that may be profitable under conditions of low volatility are currency options.

Interest Rate Volatility

Economic internationalization generated a significant impact on interest rates as well. Economics became much more interrelated and that exacerbated the need to change interest rates faster. Interest rates are generally changed in order to adjust the growth in the economy, and interest rate differentials have a substantial impact on exchange rates.

Business Internationalization

In recent decades the business world the competition has intensified, triggering a worldwide hunt for more markets and cheaper raw materials and labor. The pace of economic internationalization picked up even more in the 1990s, due to the fall of Communism in Europe and to up-and-down economic and financial development in both Southeast Asia and South America. These changes have been positive toward foreign exchange, since more transactional layers were added.

Increasing of Corporate Interest

A successful performance of a product or service overseas may be pulled down from the profit point of view by adverse foreign exchange conditions and vice versa. An accurate handling of the foreign exchange may enhance the overall international performance of a product or service. Proper handling of foreign exchange generally adds substantially to the rate of return. Therefore, interest in foreign exchange has increased in the past decade. Many corporations are using currencies not only for hedging, but also for capitalizing on opportunities that exist solely in the currency markets.

Increasing of Traders Sophistication

Advances in technology, computer software, and telecommunications and increased experience have increased the level of traders' sophistication. This

enhanced traders' confidence in their ability to both generate profits and properly handle the exchange risks. Therefore, trading sophistication led toward volume increase.

Developments in Telecommunications

The introduction of automated dealing systems in the 1980s, of matching systems in the early 1990s, and of Internet trading in the late 1990s completely altered the way foreign exchange was conducted. The dealing systems are on-line computer systems that link banks on a one-to-one basis, while matching systems are electronic brokers. They are reliable and much faster, allowing traders to conduct more simultaneous trades. They are also safer, as traders are able to see the deals that they execute. The dealing systems had a major role in expanding the foreign exchange business due to their reliability, speed, and safety.

Computer and Programming development

Computers play a significant role at many stages of conducting foreign exchange. In addition to the dealing systems, matching systems simultaneously connect all traders around the world, electronically duplicating the brokers' market. The new office systems provide full accounting coverage, ticket writing, back office processing, and risk management implementation at a fraction of their previous cost. Advanced software makes it possible to generate all types of charts, augment them with sophisticated technical studies, and put them at traders' fingertips on a continuous basis at a rather limited cost.

CHAPTER 2
Kinds Of Major Currencies And Exchange Systems

2.1. Major Currencies

The U.S. Dollar

The United States dollar is the world's main currency. All currencies are generally quoted in U.S. dollar terms. Under conditions of international economic and political unrest, the U.S. dollar is the main safe-haven currency which was proven particularly well during the Southeast Asian crisis of 1997-1998.

The U.S. dollar became the leading currency toward the end of the Second World War and was at the center of the Bretton Woods Accord, as the other currencies were virtually pegged against it. The introduction of the euro in 1999 reduced the dollar's importance only marginally.

The major currencies traded against the U.S. dollar are the euro, Japanese yen, British pound, and Swiss franc.

The Euro

The euro was designed to become the premier currency in trading by simply being quoted in American terms. Like the U.S. dollar, the euro has a strong international presence stemming from members of the European Monetary Union. The currency remains plagued by unequal growth, high unemployment, and government resistance to structural changes. The pair was also weighed in 1999 and 2000 by outflows from foreign investors, particularly Japanese, who were forced to liquidate their losing investments in euro-denominated assets. Moreover, European money managers rebalanced their portfolios and reduced their euro exposure as their needs for hedging currency risk in Europe declined.

The Japanese Yen

The Japanese yen is the third most traded currency in the world; it has a much smaller international presence than the U.S. dollar or the euro. The yen is very liquid around the world, practically around the clock. The natural demand to trade the yen concentrated mostly among the Japanese keiretsu, the economic and financial conglomerates.

The yen is much more sensitive to the fortunes of the Nikkei index, the Japanese stock market, and the real estate market. The attempt of the Bank of Japan to deflate the double bubble in these two markets had a negative effect on the Japanese yen, although the impact was short-lived

The British Pound

Until the end of World War II, the pound was the currency of reference. Its nickname, cable, is derived from the telex machine, which was used to trade it in its heyday. The currency is heavily traded against the euro and the U.S. dollar, but has a spotty presence against other currencies. The two-year bout with the Exchange Rate Mechanism, between 1990 and 1992, had a soothing effect on the British pound, as it generally had to follow the deutsche mark's fluctuations, but the crisis conditions that precipitated the pound's withdrawal from the ERM had a psychological effect on the currency.

Prior to the introduction of the euro, both the pound benefited from any doubts about the currency convergence. After the introduction of the euro, Bank of England is attempting to bring the high U.K. rates closer to the lower rates in the euro zone. The pound could join the euro in the early 2000s, provided that the U.K. referendum is positive.

The Swiss Franc

The Swiss franc is the only currency of a major European country that belongs neither to the European Monetary Union nor to the G-7 countries. Although the Swiss economy is relatively small, the Swiss franc is one of the four major currencies, closely resembling the strength and quality of the Swiss economy and finance. Switzerland has a very close economic relationship with Germany, and thus to the euro zone. Therefore, in terms of political uncertainty in the East, the Swiss franc is favored generally over the euro.

Typically, it is believed that the Swiss franc is a stable currency. Actually, from a foreign exchange point of view, the Swiss franc closely resembles the patterns of the euro, but lacks its liquidity. As the demand for it exceeds supply, the Swiss franc can be more volatile than the euro.

2.2. Kinds of Exchange Systems

Trading with Brokers

Foreign exchange brokers, unlike equity brokers, do not take positions for themselves; they only service banks. Their roles are:

- bringing together buyers and sellers in the market;
- optimizing the price they show to their customers;
- quickly, accurately, and faithfully executing the traders' orders.

The majority of the foreign exchange brokers execute business via phone. The phone lines between brokers and banks are dedicated, or direct, and are usually in-stalled free of charge by the broker. A foreign exchange brokerage firm has direct lines to banks around the world. Most foreign exchange is executed through an open box system—a microphone in front of the broker that continuously transmits everything he or she says on the direct phone lines to the speaker boxes in the banks. This way, all banks can hear all the deals being executed. Because of the open box system used by brokers, a trader is able to hear all prices quoted; whether the bid was hit or the offer taken; and the following price. What the trader will not be able to hear is the amounts of particular bids and offers and the names of the banks showing the prices. Prices are anonymous the anonymity of the banks that are trading in the market ensures the market's efficiency, as all banks have a fair chance to trade.

Brokers charge a commission that is paid equally by the buyer and the seller. The fees are negotiated on an individual basis by the bank and the brokerage firm.

Brokers show their customers the prices made by other customers either two-way (bid and offer) prices or one way (bid or offer) prices from his or her customers. Traders show different prices because they "read" the market differently; they have different expectations and different interests. A broker who has more than one price on one or both sides will automatically optimize the price. In other words, the broker will always show the highest bid and the lowest offer. Therefore, the market has access to the narrowest spread possible. Fundamental and technical analyses are used for forecasting the future direction of the currency. A trader might test the market by hitting a bid for a small amount to see if there is any reaction.

Brokers cannot be forced into taking a principal's role if the name switch takes longer than anticipated.

Another advantage of the brokers' market is that brokers might provide a broader selection of banks to their customers. Some European and Asian banks have overnight desks so their orders are usually placed with brokers who can deal with the American banks, adding to the liquidity of the market.

Direct Dealing

Direct dealing is based on trading reciprocity. A market maker—the bank making or quoting a price—expects the bank that is calling to reciprocate with respect to making a price when called upon. Direct dealing provides more trading discretion, as compared to dealing in the brokers' market. Sometimes traders take advantage of this characteristic.

Direct dealing used to be conducted mostly on the phone. Dealing errors were difficult to prove and even more difficult to settle. In order to increase dealing safety, most banks tapped the phone lines on which trading was conducted. This measure was helpful in recording all the transaction details and enabling the dealers to allocate the responsibility for errors fairly. But tape recorders were unable to prevent trading errors. Direct dealing was forever changed in the mid - 1980s, by the introduction of dealing systems.

Dealing Systems

Dealing systems are on-line computers that link the contributing banks around the world on a one-on-one basis. The performance of dealing systems is characterized by speed, reliability, and safety. Accessing a bank through a dealing system is much faster than making a phone call. Dealing systems are continuously being improved in order to offer maximum support to the dealer's main function: trading. The software is very reliable in picking up the big figure of the exchange rates and the standard value dates. In addition, it is extremely precise and fast in contacting other parties, switching among conversations, and accessing the database. The trader is in continuous visual contact with the information exchanged on the monitor. It is easier to see than hear this information, especially when switching among conversations.

Most banks use a combination of brokers and direct dealing systems. Both approaches reach the same banks, but not the same parties, because corporations, for instance, cannot deal in the brokers' market. Traders develop personal relationships with both brokers and traders in the markets, but select their trading medium based on price quality, not on personal feelings. The market share between dealing systems and brokers fluctuates based on market conditions. Fast market conditions are beneficial to dealing systems, whereas regular market conditions are more beneficial to brokers.

Matching Systems

Unlike dealing systems, on which trading is not anonymous and is conducted on a one-on-one basis, matching systems are anonymous and individual traders deal against the rest of the market, similar to dealing in the brokers' market. However, unlike the brokers' market, there are no individuals to bring the prices to the market, and liquidity may be limited at times. Matching systems are well-suited for trading smaller amounts as well.

The dealing systems characteristics of speed, reliability, and safety are replicated in the matching systems. In addition, credit lines are automatically

managed by the systems. Traders input the total credit line for each counter party. When the credit line has been reached, the system automatically disallows dealing with the particular party by displaying credit restrictions, or shows the trader only the price made by banks that have open lines of credit. As soon as the credit line is restored, the system allows the bank to deal again. In the interbank market, traders deal directly with dealing systems, matching systems, and brokers in a complementary fashion.

2.3. The Federal Reserve System of the USA and Central Banks of the Other G-7 Countries

The Federal Reserve System of the USA

Like the other central banks, the Federal Reserve of the USA affects the foreign exchange markets in three general areas:

- the discount rate;
- the money market instruments;
- foreign exchange operations.

For the foreign exchange operations most significant are repurchase agreements to sell the same security back at the same price at a predetermined date in the future (usually within 15 days), and at a specific rate of interest. This arrangement amounts to a temporary injection of reserves into the banking system. The impact on the foreign exchange market is that the dollar should weaken. The repurchase agreements may be either customer repos or system repos.

Matched sale-purchase agreements are just the opposite of repurchase agreements. When executing a matched sale-purchase agreement, the Fed sells a security for immediate delivery to a dealer or a foreign central bank, with the agreement to buy back the same security at the same price at a predetermined time in the future (generally within 7 days). This arrangement amounts to a temporary drain of reserves. The impact on the foreign exchange market is that the dollar should strengthen.

The major central banks are involved in foreign exchange operations in more ways than intervening in the open market. Their operations include payments among central banks or to international agencies. In addition, the Federal Reserve has entered a series of currency swap arrangements with other central banks since 1962. For instance, to help the allied war effort against Iraq's invasion of Kuwait in 1990-1991, payments were executed by the Bundesbank and Bank of Japan to the Federal Reserve. Also, payments to the World bank or the United Nations are executed through central banks.

Intervention in the United States foreign exchange markets by the U.S. Treasury and the Federal Reserve is geared toward restoring orderly conditions in the market or influencing the exchange rates. It is not geared toward affecting the reserves.

There are two types of foreign exchange interventions: naked intervention and sterilized intervention.

Naked intervention, or unsterilized intervention, refers to the sole foreign exchange activity. All that takes place is the intervention itself, in which the

Federal Reserve either buys or sells U.S. dollars against a foreign currency. In addition to the impact on the foreign exchange market, there is also a monetary effect on the money supply. If the money supply is impacted, then consequent adjustments must be made in interest rates, in prices, and at all levels of the economy. Therefore, a naked foreign exchange intervention has a long-term effect.

Sterilized intervention neutralizes its impact on the money supply. As there are rather few central banks that want the impact of their intervention in the foreign exchange markets to affect all corners of their economy, sterilized interventions have been the tool of choice. This holds true for the Federal Reserve as well.

The sterilized intervention involves an additional step to the original currency transaction. This step consists of a sale of government securities that offsets the reserve addition that occurs due to the intervention. It may be easier to visualize it if you think that the central bank will finance the sale of a currency through the sale of a number of government securities.

Because a sterilized intervention only generates an impact on the supply and demand of a certain currency, its impact will tend to have a short-to medium-term effect.

The Central Banks of the Other G-7 Countries

In the wake of World War II, both Germany and Japan were helped to develop new financial systems. Both countries created central banks that were fundamentally similar to the Federal Reserve. Along the line, their scope was customized to their domestic needs and they diverged from their model.

The European Central Bank was set up on June 1, 1998 to oversee the ascent of the euro. During the transition to the third stage of economic and monetary union (introduction of the single currency on January 1, 1999), it was responsible for carrying out the Community's monetary policy. The ECB, which is an independent entity, supervises the activity of individual member European central banks, such as Deutsche Bundesbank, Banque de France, and Ufficio Italiano dei Cambi. The ECB's decision-making bodies run a European System of Central Banks whose task is to manage the money in circulation, conduct foreign exchange operations, hold and manage the Member States' official foreign reserves, and promote the smooth operation of payment systems. The ECB is the successor to the European Monetary Institute (EMI).

The German central bank, widely known as the Bundesbank, was the model for the ECB. The Bundesbank was a very independent entity, dedicated to a stable currency, low inflation, and a controlled money supply. The hyperinflation that developed in Germany after World War I created a fertile economic and political scenario for the rise of an extremist political party and for

the start of World War II. The Bundesbank's chapter obligated it to avoid any such economic chaos.

The Bank of Japan has deviated from the Federal Reserve model in terms of independence. Although its Policy Board is still fully in charge of monetary policy, changes are still subject to the approval of the Ministry of Finance (MOF). The BOJ targets the M2 aggregate. On a quarterly basis, the BOJ releases its Tankan economic survey. Tankan is the Japanese equivalent of the American tan book, which presents the state of the economy. The Tankan's findings are not automatic triggers of monetary policy changes. Generally, the lack of independence of a central bank signals inflation. This is not the case in Japan, and it is yet another example of how different fiscal or economic policies can have opposite effects in separate environments.

The Bank of England may be characterized as a less independent central bank, because the government may overrule its decision. The BOE has not had an easy tenure. Despite the fact that British inflation was high through 1991, reaching double-digit rates in the late 1980s, the Bank of England did a marvelous job of proving to the world that it was able to maneuver the pound into mirroring the Exchange Rate Mechanism.

After joining the ERM late in 1990, the BOE was instrumental in keeping the pound within its 6 percent allowed range against the deutsche mark, but the pound had a short stay in the Exchange Rate Mechanism. The divergence between the artificially high interest rates linked to ERM commitments and Britain's weak domestic economy triggered a massive sell-off of the pound in September 1992.

The Bank of France has joint responsibility, with the Ministry of Finance, to conduct domestic monetary policy. Their main goals are non-inflationary growth and external account equilibrium. France has become a major player in the foreign exchange markets since the ravages of the ERM crisis of July 1993, when the French franc fell victim to the foreign exchange markets.

The Bank of Italy is in charge of the monetary policy, financial intermediaries, and foreign exchange. Like the other former European Monetary System central banks, BOI's responsibilities shifted domestically following the ERM crisis. Along with the Bundesbank and Bank of France, the Bank of Italy is now part of the European System of Central Banks (ESCB).

The Bank of Canada is an independent central bank that has a tight rein on its currency. Due to its complex economic relations with the United States, the Canadian dollar has a strong connection to the U.S. dollar. The BOC intervenes more frequently than the other G7 central banks to shore up the fluctuations of its Canadian dollar. The central bank changed its intervention policy in 1999 after admitting that its previous mechanical policy, of intervening in increments of only $50 million at a set price based on the previous closing, was not working.

CHAPTER 3
Kinds Of Foreign Exchange Market

3.1. Spot Market

Currency spot trading is the most popular foreign currency instrument around the world, making up 37 percent of the total activity (See Figure 3.1).

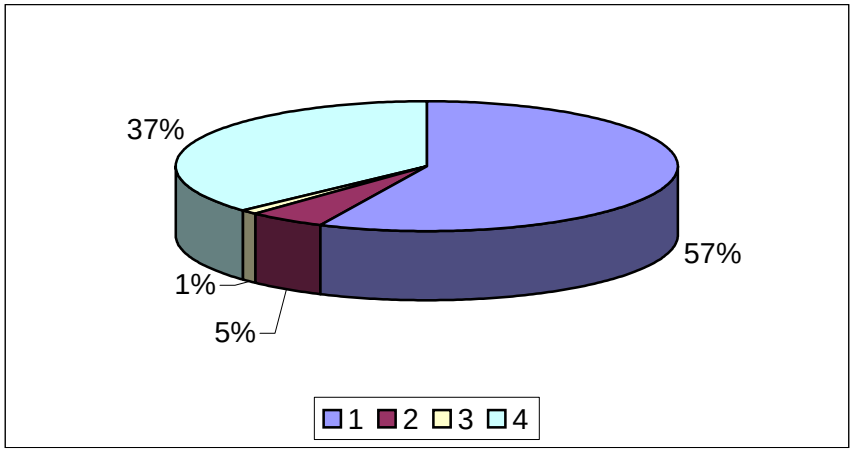

Figure 3.1.The market share of the foreign exchange instruments as of 1998: 1- spot; 2 – options; 3 – futures; 4 – forwards and swaps.

The fast-paced spot market is not for the fainthearted, as it features high volatility and quick profits (and losses). A spot deal consists of a bilateral contract whereby a party delivers a specified amount of a given currency against receipt of a specified amount of another currency from a counterparty, based on an agreed exchange rate, within two business days of the deal date. The exception is the Canadian dollar, in which the spot delivery is executed next business day.

The name "spot" does not mean that the currency exchange occurs the same business day the deal is executed. Currency transactions that require same-day delivery are called cash transactions. The two-day spot delivery for currencies was developed long before technological breakthroughs in information processing.

This time period was necessary to check out all transactions' details among counterparties. Although technologically feasible, the contemporary markets did not find it necessary to reduce the time to make payments. Human errors still occur and they need to be fixed before delivery. When currency deliveries are made to the wrong party, fines are imposed.

In terms of volume, currencies around the world are traded mostly against the U.S. dollar, because the U.S. dollar is the currency of reference. The other major currencies are the euro, followed by the Japanese yen, the British pound, and the Swiss franc. Other currencies with significant spot market shares are the Canadian dollar and the Australian dollar.

In addition, a significant share of trading takes place in the currencies crosses, a non-dollar instrument whereby foreign currencies are quoted against other foreign currencies, such as euro against Japanese yen.

There are several reasons for the popularity of currency spot trading. Profits (or losses) are realized quickly in the spot market, due to market volatility. In addition, since spot deals mature in only two business days, the time exposure to credit risk is limited. Turnover in the spot market has been increasing dramatically, thanks to the combination of inherent profitability and reduced credit risk. The spot market is characterized by high liquidity and high volatility. Volatility is the degree to which the price of currency tends to fluctuate within a certain period of time. Free-floating currencies, such as the euro or the Japanese yen, tend to be volatile against the U.S. dollar.

In an active global trading day (24 hours), the euro/dollar exchange rate may change its value 18,000 times. An exchange rate may "fly" 200 pips in a matter of seconds if the market gets wind of a significant event. On the other hand, the exchange rate may remain quite static for extended periods of time, even in excess of an hour, when one market is almost finished trading and waiting for the next market to take over. This is a common occurrence toward the end of the New York trading day. Since California failed in the late 1980s to provide the link between the New York and Tokyo markets, there is a technical trading gap between around 4:30 pm and 6 pm EDT. In the United States spot market, the majority of deals are executed between 8 am and noon, when the New York and European markets overlap (See Figure 3.2). The activity drops sharply in the afternoon, over 50 percent in fact, when New York loses the international trading support. Overnight trading is limited, as very few banks have overnight desks. Most of the banks

send their overnight orders to branches or other banks that operate in the active time zones.

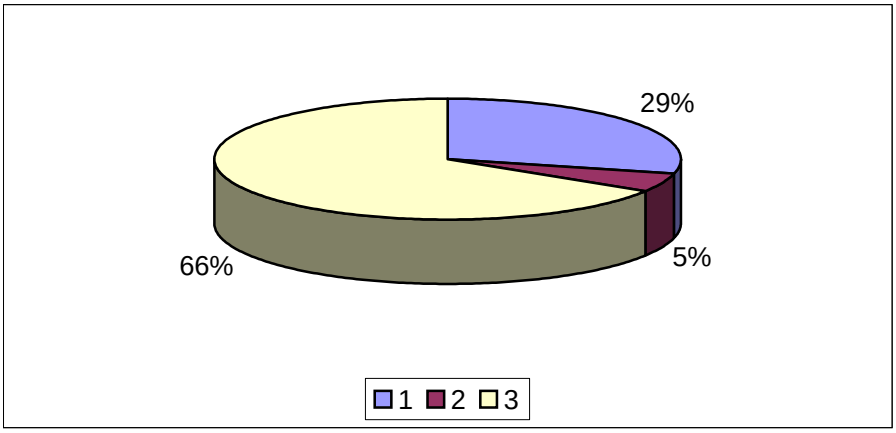

Figure 3.2. Distribution of the trading activity in the United States spot market in time: 1 – transactions volume between 12 p.m. and 4 p.m.; 2 – between 4 p.m. and 8 p.m.; 3 – between 8 a.m. and 12 p.m.

The major traders in the spot market are the commercial banks and the investment banks, followed by hedge funds and corporate customers. In the interbank market, the majority of the deals are international, reflecting worldwide exchange rate competition and advanced telecommunication systems. However, corporate customers tend to focus their foreign exchange activity domestically, or to trade through foreign banks operating in the same time zone. Although the hedge funds' and corporate customers' business in foreign exchange has been growing, banks remain the predominant trading force.

The bottom line is important in all financial markets, but in currency spot trading the antes always seem to be higher as a result of the demand from all around the world.

The profit and loss can be either realized or unrealized. The realized profit and loss is a certain amount of money netted when a position is closed. The unrealized profit and loss consists of an uncertain amount of money that an outstanding position would roughly generate if it were closed at the current rate. The unrealized profit and loss changes continuously in tandem with the exchange rate.

3.2. Forward Market

The forward currency market consists of two instruments: forward outright deals and swaps. A swap deal is unusual among the rest of the foreign exchange instruments in the fact that it consists of two deals, or legs. All the other transactions consist of single deals. In its original form, a swap deal is a combination of a spot deal and a forward outright deal.

Generally, this market includes only cash transactions. Therefore, currency futures contracts, although a special breed of forward outright transactions, are analyzed separately.

According to figures published by the Bank for International Settlements, the percentage share of the forward market was 57 percent in 1998 (See Figure 3.1). Translated into U.S. dollars, out of an estimated daily gross turnover of US$1.49 trillion, the total forward market represents US$900 billion.

In the forward market there is no norm with regard to the settlement dates, which range from 3 days to 3 years. Volume in currency swaps longer than one year tends to be light but, technically, there is no impediment to making these deals. Any date past the spot date and within the above range may be a forward settlement, provided that it is a valid business day for both currencies. The forward markets are decentralized markets, with players around the world entering into a variety of deals either on a one-on-one basis or through brokers. In contrast, the currency futures market is a centralized market, in which all the deals are executed on trading floors provided by different exchanges.

Whereas in the futures market only a handful of foreign currencies may be traded in multiples of standardized amounts, the forward markets are open to any currencies in any amount. The forward price consists of two significant parts: the spot exchange rate and the forward spread. The spot rate is the main building block. The forward price is derived from the spot price by adjusting the spot price with the forward spread, so it follows that both forward outright and swap deals are derivative instruments. The forward spread is also known as the forward points or the forward pips. The forward spread is necessary for adjusting the spot rate for specific settlement dates different from the spot date. It holds, then, that the maturity date is another determining factor of the forward price. Just as in the case of the spot market, the left side of the quote is the bid side, and the right side is the offer side.

3.3. Futures Market

Currency futures are specific types of forward outright deals which occupy in general a small part of the Forex market (See Figure 3.1). Because they are derived from the spot price, they are derivative instruments. They are specific with regard to the expiration date and the size of the trade amount. Whereas, generally, forward outright deals—those that mature past the spot delivery date—will mature on any valid date in the two countries whose currencies are being traded, standardized amounts of foreign currency futures mature only on the third Wednesday of March, June, September, and December.

There is a row of characteristics of currency futures, which make them attractive. It is open to all market participants, individuals included. This is different from the spot market, which is virtually closed to individuals - except high net-worth individuals—because of the size of the currency amounts traded. It is a central market, just as efficient as the cash market, and whereas the cash market is a very decentralized market, futures trading takes place under one roof. It eliminates the credit risk because the Chicago Mercantile Exchange Clearinghouse acts as the buyer for every seller, and vice versa. In turn, the Clearinghouse minimizes its own exposure by requiring traders who maintain a non-profitable position to post margins equal in size to their losses.

Moreover, currency futures provide several benefits for traders because futures are special types of forward outright contracts, corporations can use them for hedging purposes. Although the futures and spot markets trade closely together, certain divergences between the two occur, generating arbitraging opportunities. Gaps, volume, and open interest are significant technical analysis tools solely available in the futures market. Yet their significance extrapolates to the spot market as well.

Because of these benefits, currency futures trading volume has steadily attracted a large variety of players.

For traders outside the exchange, the prices are available from on-line monitors. The most popular pages are found on Bridge, Telerate, Reuters, and Bloomberg. Telerate presents the currency futures on composite pages, while Reuters and Bloomberg display currency futures on individual pages shows the convergence between the futures and spot prices.

3.4. Currency Options

A currency option is a contract between a buyer and a seller that gives the buyer the right, but not the obligation, to trade a specific amount of currency at a predetermined price and within a predetermined period of time, regardless of the market price of the currency; and gives the seller, or writer, the obligation to deliver the currency under the predetermined terms, if and when the buyer wants to exercise the option.

Currency options are unique trading instruments, equally fit for speculation and hedging. Options allow for a comprehensive customization of each individual strategy, a quality of vital importance for the sophisticated investor. More factors affect the option price relative to the prices of other foreign currency instruments. Unlike spot or forwards, both high and low volatility may generate a profit in the options market. For some, options are a cheaper vehicle for currency trading. For others, options mean added security and exact stop-loss order execution.

Currency options constitute the fastest-growing segment of the foreign exchange market. As of April 1998, options represented 5 percent of the foreign exchange market. (See Figure 3.1) The biggest options trading center is the United States, followed by the United Kingdom and Japan. Options prices are based on, or derived from, the cash instruments. Therefore, an option is a derivative instrument. Options are usually mentioned vis-a-vis insurance and hedging strategies. Often, however, traders have misconceptions regarding both the difficulty and simplicity of using options. There are also misconceptions regarding the capabilities of options.

In the currency markets, options are available on either cash or futures. It follows, then, that they are traded either over-the-counter (OTC) or on the centralized futures markets.

The majority of currency options, around 81 percent, are traded over-the-counter. (See Figure 3.3) The over-the-counter market is similar to the spot or swap market.

Corporations may call banks and banks will trade with each other either directly or in the brokers' market. This type of dealing allows for maximum flexibility: any amount, any currency, any odd expiration date, any time. The currency amounts may be even or odd. The amounts may be quoted in either U.S. dollars or foreign currencies.

Any currency may be traded as an option, not only the ones available as futures contracts. Therefore, traders may quote on any exotic currency, as required, including any cross currencies.

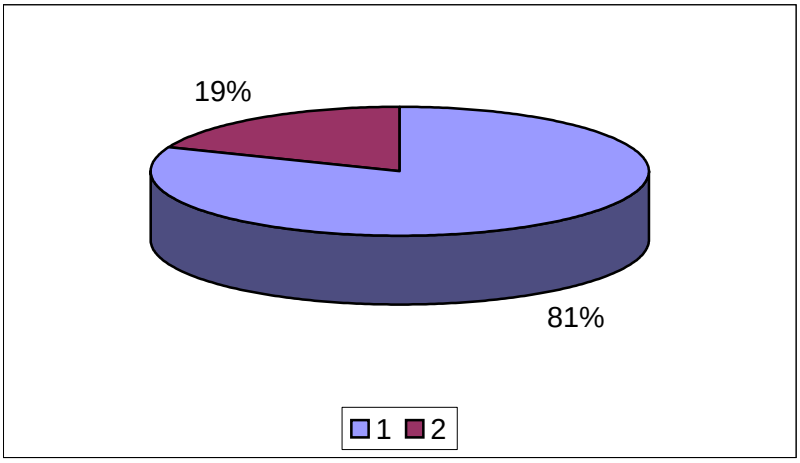

Figure 3.3. Distribution of the options trading between over-the-counter (OTC) and the organized exchange market: 1 – the share of OTC; 2 – the share of organized exchanges.

The expiration date may be quoted anywhere from several hours to several years, although the bulk of dates are concentrated around the even dates—one week, one month, two months, and so on. The cash market never closes, so options may be traded literally around the clock.

Trading an option on currency futures will entitle the buyer to the right, but not the obligation, to take physical possession of the currency future. Unlike the currency futures, buying currency options does not require an initiation margin. The option premium, or price, paid by the buyer to the seller, or writer, reflects the buyer's total risk.

However, upon taking physical possession of the currency future by exercising the option, a trader will have to deposit a margin.

Seven major factors have an impact on the option price:
1. Price of the currency.
2. Strike (exercise) price.
3. Volatility of the currency.
4. Expiration date.
5. Interest rate differential.
6. Call or put.
7. American or European option style.

The currency price is the central building block, as all the other factors are compared and analyzed against it. It is the currency price behavior that both generates the need for options and impacts on the profitability of options.

The impact of the currency price on the option premium is measured by delta, the first of the Greek letters used to describe aspects of the theoretical pricing models in this discussion of factors determining the option price.

Delta

Delta, or commonly A, is the first derivative of the option-pricing model Delta may be viewed in three respects:

- as the change of the currency option price relative to a change in the currency price. For instance, an option with a delta of 0.5 is expected to move at one half the rate of change of the currency price. Therefore, if the price of a currency goes up 10 percent, then the price of an option on that particular currency is expected to rise by 5 percent.
- as the hedge ratio between the option contracts and the currency futures contracts necessary to establish a neutral hedge. Therefore, an option with a delta of 0.5 will need two option contracts for each of the currency futures contracts.
- as the theoretical or equivalent share position. In this case, delta is the number of currency futures contracts by which a call buyer is long or a put buyer is short. If we use the same example of the delta of 5, then the buyer of the put option is short half a currency futures contract.

Traders may be unable to secure prices in the spot, forward outright, or futures market, temporarily leaving the position delta unhedged. In order to avoid the high cost of hedging and the risk of unusually high volatility, traders may hedge their original options positions with other options. This method of risk neutralization is called gamma or vega hedging.

Gamma

Gamma (Γ) is also known as the curvature of the option. It is the second derivative of the option-pricing model and is the rate of change of an option's delta, or the sensitivity of the delta. For instance, an option with delta = 0.5 and gamma = 0.05 is expected to have a delta = 0.55 if the currency rises by 1 point, or a delta = 0.45 if the currency decreases by 1 point. Gamma ranges between 0 percent and 100 percent. The higher the gamma, the higher the sensitivity of the delta. It may therefore be useful to think of gamma as the acceleration of the option relative to the movement of the currency.

Vega

Vega gauges volatility impact on the option premium. Vega (<;) is the sensitivity of the theoretical value of an option to a change in volatility. For instance, a vega of 0.2 will generate a 0.2 percent increase in the premium for each percentage increase in the volatility estimate, and a 0.2 percent decrease in the premium for each percentage decrease in the volatility estimate.

The option is traded for a predetermined period of time, and when this time expires, there is a delivery date known as the expiration date. A buyer who intends to exercise the option must inform the writer on or before expiration. The buyer's failure to inform the writer about exercising the option

frees the writer of any legal obligation. An option cannot be exercised past the expiration date.

Theta

Theta (T), also known as time decay, occurs as the very slow or nonexistent movement of the currency triggers losses in the option's theoretical value.

For instance, a theta of 0.02 will generate a loss of 0.02 in the premium for each day that the currency price is flat. Intrinsic value is not affected by time, but extrinsic value is. Time decay accelerates as the option approaches expiration, since the number of possible outcomes is continuously reduced as the time passes.

Time has its maximum impact on at-the-money options and its minimum effect on in-the-money options. Time's effect on out-of-the-money options occurs somewhere within that range.

Bid-offer spreads in the market may make it too expensive to sell the option and trade forward out rights.

If the option shifts deeply into the money, the interest rate differential gained by early exercise may exceed the value of the option.

If the option amount is small or the expiration is close and the option value only consists of the intrinsic value, it may be better to use the early exercise.

Due to the complexity of its determining factors, option pricing is difficult. In the absence of option pricing models, option trading is nothing but inefficient gambling.

The one idea to make option pricing is that the option of buying the domestic currency with a foreign currency at a certain price x is equivalent to the option of selling the foreign currency with the domestic currency at the same price x. Therefore, the call option in the domestic currency becomes the put option in the other, and vice versa.

CHAPTER 4
Fundamental Analysis

Two types of analysis are used for the market movements forecasting: fundamental, and technical (the chart study of past behavior of commodity prices). The fundamental one focuses on the theoretical models of exchange rate determination and on the major economic factors and their likelihood of affecting the foreign exchange rates.

4.1. Economic Fundamentals

Theories of Exchange Rate Determination

Fundamentals may be classified into economic factors, financial factors, political factors, and crises. Economic factors differ from the other three factors in terms of the certainty of their release. The dates and times of economic data release are known well in advance, at least among the industrialized nations. Below are given briefly several known theories of exchange rate determination.

Purchasing Power Parity

Purchasing power parity states that the price of a good in one country should equal the price of the same good in another country, exchanged at the current rate—the law of one price. There are two versions of the purchasing power parity theory: the absolute version and the relative version. Under the absolute version, the exchange rate simply equals the ratio of the two countries' general price levels, which is the weighted average of all goods produced in a country. However, this version works only if it is possible to find two countries, which produce or consume the same goods. Moreover, the absolute version assumes that transportation costs and trade barriers are insignificant. In reality, transportation costs are significant and dissimilar around the world.

Trade barriers are still alive and well, sometimes obvious and sometimes hidden, and they influence costs and goods distribution.

Finally, this version disregards the importance of brand names. For example, cars are chosen not only based on the best price for the same type of car, but also on the basis of the name ("You are what you drive").

The PPP Relative Version

Under the relative version, the percentage change in the exchange rate from a given base period must equal the difference between the percentage change in the domestic price level and the percentage change in the foreign price level. The relative version of the PPP is also not free of problems: it is difficult or arbitrary to define the base period, trade restrictions remain a real and thorny issue, just as with the absolute version, different price index weighting and the inclusion of different products in the indexes make the comparison difficult and in the long term, countries' internal price ratios may change, causing the exchange rate to move away from the relative PPP.

In conclusion, the spot exchange rate moves independently of relative domestic and foreign prices. In the short run, the exchange rate is influenced by financial and not by commodity market conditions.

Theory of Elasticities

The theory of elasticities holds that the exchange rate is simply the price of foreign exchange that maintains the balance of payments in equilibrium. For instance, if the imports of country A are strong, then the trade balance is weak. Consequently, the exchange rate rises, leading to the growth of country A's exports, and triggers in turn a rise in its domestic income, along with a decrease in its foreign income. Whereas a rise in the domestic income (in country A) will trigger an increase in the domestic consumption of both domestic and foreign goods and, therefore, more demand for foreign currencies, a decrease in the foreign income (in country B) will trigger a decrease in the domestic consumption of both country B's domestic and foreign goods, and therefore less demand for its own currency.

The elasticities approach is not problem-free because in the short term the exchange rate is more inelastic than it is in the long term and the additional exchange rate variables arise continuously, changing the rules of the game.

Modern Monetary Theories on Short-Term Exchange Rate Volatility

The modern monetary theories on short-term exchange rate volatility take into consideration the short-term capital markets' role and the long-term impact of the commodity markets on foreign exchange. These theories hold that the divergence between the exchange rate and the purchasing power parity is due to the supply and demand for financial assets and the international capability.

One of the modern monetary theories states that exchange rate volatility is triggered by a one-time domestic money supply increase, because this is assumed to raise expectations of higher future monetary growth.

The purchasing power parity theory is extended to include the capital markets. If, in both countries whose currencies are exchanged, the demand

for money is determined by the level of domestic income and domestic interest rates, then a higher income increases demand for transactions balances while a higher interest rate increases the opportunity cost of holding money, reducing the demand for money.

Under a second approach, the exchange rate adjusts instantaneously to maintain continuous interest rate parity, but only in the long run to maintain PPP.

Volatility occurs because the commodity markets adjust more slowly than the financial markets. This version is known as the dynamic monetary approach.

The Portfolio-Balance Approach

The portfolio-balance approach holds that currency demand is triggered by the demand for financial assets, rather than the demand for the currency per se.

Synthesis of Traditional and Modern Monetary Views

In order to better suit the previous theories to the realities of the market, some of the more stringent conditions were adjusted into a synthesis of the traditional and modern monetary theories.

A short-term capital outflow induced by a monetary shock creates a payments imbalance that requires an exchange rate change to maintain balance of payments equilibrium. Speculative forces, commodity markets disturbances, and the existence of short-term capital mobility trigger the exchange rate volatility. The degree of change in the exchange rate is a function of consumers' elasticity of demand.

Because the financial markets adjust faster than the commodities markets, the exchange rate tends to be affected in the short term by capital market changes, and in the long term by commodities changes.

4.2. Economic Indicators

Economic indicators occur in a steady stream, at certain times, and a little more often than changes in interest rates, governments, or natural activity such as earthquakes etc. Economic data is generally (except of the Gross Domestic Product and the Employment Cost Index, which are released quarterly) released on a monthly basis.

All economic indicators are released in pairs. The first number reflects the latest period. The second number is the revised figure for the month prior to the latest period. For instance, in July, economic data is released for the month of June, the latest period. In addition, the release includes the revision of the same economic indicator figure for the month of May. The reason for the revision is that the department in charge of the economic statistics compilation is in a better position to gather more information in a month's time. This feature is important for traders. If the figure for an economic indicator is better than expected by 0.4 percent for the past month, but the previous month's number is revised lower by 0.4 percent, then traders are likely to ignore the overall release of that specific economic data.

Economic indicators are released at different times. In the United States, economic data is generally released at 8:30 and 10 am ET. It is important to remember that the most significant data for foreign exchange is released at 8:30 am ET. In order to allow time for last-minute adjustments, the United States currency futures markets open at 8:20 am ET.

Information on upcoming economic indicators is published in all leading newspapers, such as the Wall Street Journal, the Financial Times, and the New York Times; and business magazines, such as Business Week. More often than not, traders use the monitor sources—Bridge Information Systems, Reuters, or Bloomberg—to gather information both from news publications and from the sources' own up-to-date information.

The Gross National Product (GNP)

The Gross National Product measures the economic performance of the whole economy.

This indicator consists, at macro scale, of the sum of consumption spending, investment spending, government spending, and net trade. The gross national product refers to the sum of all goods and services produced by United States residents, either in the United States or abroad.

The Gross Domestic Product (GDP)

The Gross Domestic Product (GDP) refers to the sum of all goods and services produced in the United States, either by domestic or foreign companies. The differences between the two are nominal in the case of the economy of the United States. GDP figures are more popular outside the

United States. In order to make it easier to compare the performances of different economies, the United States also releases GDP figures.

Consumption Spending

Consumption is made possible by personal income and discretionary income. The decision by consumers to spend or to save is psychological in nature. Consumer confidence is also measured as an important indicator of the propensity of consumers who have discretionary income to switch from saving to buying.

Investment Spending

Investment—or gross private domestic spending - consists of fixed investment and inventories.

Government Spending

Government spending is very influential in terms of both sheer size and its impact on other economic indicators, due to special expenditures. For instance, United States military expenditures had a significant role in total U.S. employment until 1990. The defense cuts that occurred at the time increased unemployment figures in the short run.

Net Trade

Net trade is another major component of the GNP. Worldwide internationalization and the economic and political developments since 1980 have had a sharp impact on the United States' ability to compete overseas. The U.S. trade deficit of the past decades has slowed down the overall GNP. GNP can be approached in two ways: flow of product and flow of cost.

Industrial Production

Industrial production consists of the total output of a nation's plants, utilities, and mines. From a fundamental point of view, it is an important economic indicator that reflects the strength of the economy, and by extrapolation, the strength of a specific currency. Therefore, foreign exchange traders use this economic indicator as a potential trading signal.

Capacity Utilization

Capacity utilization consists of total industrial output divided by total production capability. The term refers to the maximum level of output a plant can generate under normal business conditions. In general, capacity utilization is not a major economic indicator for the foreign exchange market.

However, there are instances when its economic implications are useful for fundamental analysis. A "normal" figure for a steady economy is 81.5 percent. If the figure reads 85 percent or more, the data suggests that the industrial production is overheating, that the economy is close to full capacity. High capacity utilization rates precede inflation, and expectation in the foreign

exchange market is that the central bank will raise interest rates in order to avoid or fight inflation.

Factory Orders

Factory orders refer to the total of durable and nondurable goods orders. Nondurable goods consist of food, clothing, light industrial products, and products designed for the maintenance of durable goods. Durable goods orders are discussed separately. The factory orders indicator has limited significance for foreign exchange traders.

Durable Goods Orders

Durable goods orders consist of products with a life span of more than three years. Examples of durable goods are autos, appliances, furniture, jewelry, and toys. They are divided into four major categories: primary metals, machinery, electrical machinery, and transportation.

In order to eliminate the volatility pertinent to large military orders, the indicator includes a breakdown of the orders between defense and non-defense.

This data is fairly important to foreign exchange markets because it gives a good indication of consumer confidence. Because durable goods cost more than nondurables, a high number in this indicator shows consumers' propensity to spend. Therefore, a good figure is generally bullish for the domestic currency.

Business Inventories

Business inventories consist of items produced and held for future sale. The compilation of this information is facile and holds little surprise for the market. Moreover, financial management and computerization help control business inventories in unprecedented ways. Therefore, the importance of this indicator for foreign exchange traders is limited.

Construction Indicators

Construction indicators constitute significant economic indicators that are included in the calculation of the GDP of the United States. Moreover, housing has traditionally been the engine that pulled the U.S. economy out of recessions after World War II. These indicators are classified into three major categories:

1. housing starts and permits;
2. new and existing one-family home sales and
3. construction spending.

Private housing is monitored closely at all the major stages. (See Figure 4.1.) Private housing is classified based on the number of units (one, two, three, four, five, or more); region (Northeast, West, Midwest, and South); and inside or outside metropolitan statistical areas.

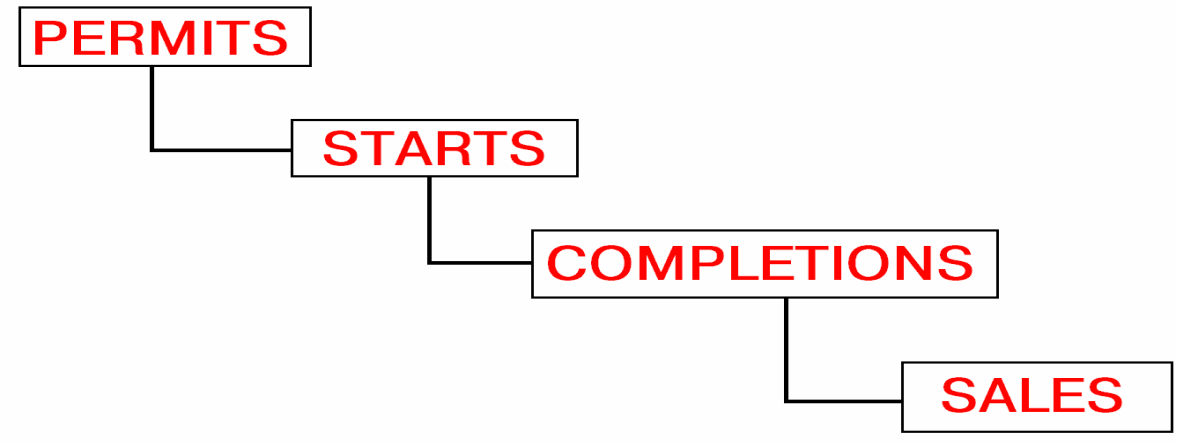

Figure 4.1. Diagram of construction of private housing

Construction indicators are cyclical and very sensitive to the level of interest rates (and consequently mortgage rates) and the level of disposable income. Low interest rates alone may not be able to generate a high demand for housing, though. As the situation in the early 1990s demonstrated, despite historically low mortgage rates in the United States, housing increased only marginally, as a result of the lack of job security in a weak economy.

Housing starts between one and a half and two million units reflect a strong economy, whereas a figure of approximately one million units suggests that the economy is in recession.

Inflation Indicators

The rate of inflation is the widespread rise in prices. Therefore, gauging inflation is a vital macroeconomic task. Traders watch the development of inflation closely, because the method of choice for fighting inflation is raising the interest rates, and higher interest rates tend to support the local currency. Moreover, the inflation rate is used to "deflate" nominal interest rates and the GNP or GDP to their real values in order to achieve a more accurate measure of the data.

The values of the real interest rates or real GNP and GDP are of the utmost importance to the money managers and traders of international financial instruments, allowing them to accurately compare opportunities worldwide.

To measure inflation traders use following economic tools:

- Producer Price Index (PPI);
- Consumer Price Index (CPI);
- GNP Deflator;
- GDP Deflator;
- Employment Cost Index (ECI);
- Commodity Research Bureau's Index (CRB Index);
- Journal of Commerce Industrial Price Index (JoC).

The first four are strictly economic indicators; they are released at specific intervals. The commodity indexes provide information on inflation quickly and continuously.

Other economic data that measure inflation are unemployment, consumer prices, and capacity utilization.

Producer Price Index (PPI)

Producer price index is compiled from most sectors of the economy, such as manufacturing, mining, and agriculture. The sample used to calculate the index contains about 3400 commodities. The weights used for the calculation of the index for some of the most important groups are: food - 24 percent; fuel - 7 percent; autos - 7 percent; and clothing - 6 percent. Unlike the CPI, the PPI does not include imported goods, services, or taxes.

Consumer Price Index (CPI)

Consumer price index reflects the average change in retail prices for a fixed market basket of goods and services. The CPI data is compiled from a sample of prices for food, shelter, clothing, fuel, transportation, and medical services that people purchase on daily basis. The weights attached for the calculation of the index to the most important groups are: housing - 38 percent; food - 19 percent; fuel - 8 percent; and autos - 7 percent.

The two indexes, PPI and CPI, are instrumental in helping traders measure inflationary activity, although the Federal Reserve takes the position that the indexes overstate the strength of inflation.

Gross National Product Implicit Deflator

Gross national product implicit deflator is calculated by dividing the current dollar GNP figure by the constant dollar GNP figure.

Gross Domestic Product Implicit

Gross domestic product implicit deflator is calculated by dividing the current dollar GDP figure by the constant dollar GDP figure.

Both the GNP and GDP implicit deflators are released quarterly, along with the respective GNP and GDP figures. The implicit deflators are generally regarded as the most significant measure of inflation.

Commodity Research Bureau's Futures Index (CRB index)

The Commodity Research Bureau's Futures Index makes watching for inflationary trends easier. The CRB Index consists of the equally weighted futures prices of 21 commodities. The components of the CRB Index are:

- precious metals: gold, silver, platinum;
- industrials: crude oil, heating oil, unleaded gas, lumber, copper, and cotton;
- grains: corn, wheat, soybeans, soy meal, soy oil;

- livestock and meat: cattle, hogs, and pork bellies;
- imports: coffee, cocoa, sugar;
- miscellaneous: orange juice.

The preponderance of food commodities makes the CRB Index less reliable in terms of general inflation. Nevertheless, the index is a popular tool that has proved quite reliable since the late 1980s.

The "Journal of commerce" Industrial Price Index (JoC)

The "Journal of commerce" industrial price index consists of the prices of 18 industrial materials and supplies processed in the initial stages of manufacturing, building, and energy production. It is more sensitive than other indexes, as it was designed to signal changes in inflation prior to the other price indexes.

Merchandise Trade Balance

is one of the most important economic indicators. Its value may trigger long-lasting changes in monetary and foreign policies. The trade balance consists of the net difference between the exports and imports of a certain economy. The data includes six categories:

1. food;
2. raw materials and industrial supplies;
3. consumer goods;
4. autos;
5. capital goods;
6. other merchandise.

Employment Indicators

The employment rate is an economic indicator with significance in multiple areas. The rate of employment, naturally, measures the soundness of an economy. (See Figure 4.2.) The unemployment rate is a lagging economic indicator. It is an important feature to remember, especially in times of economic recession. Whereas people focus on the health and recovery of the job sector, employment is the last economic indicator to rebound. When economic contraction causes jobs to be cut, it takes time to generate psychological confidence in economic recovery at the managerial level before new positions are added. At individual levels, the improvement of the job outlook may be clouded when new positions are added in small companies and thus not fully reflected in the data. The employment reports are significant to the financial markets in general and to foreign exchange in particular. In foreign exchange, the data is truly affective in periods of economic transition—recovery and contraction. The reason for the indicators' importance in extreme economic situations lies in the picture they paint of the health of the economy and in the degree of maturity of a business cycle. A decreasing unemployment figure signals a maturing cycle, whereas the opposite is true for an increasing unemployment indicator.

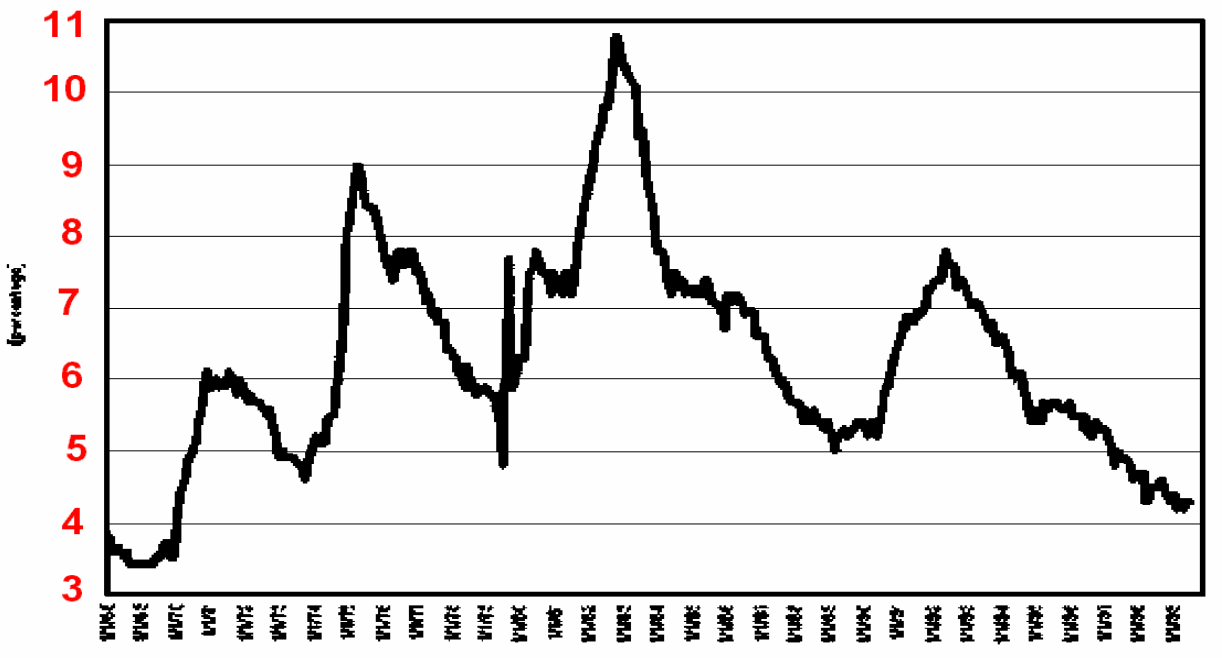

Figure 4.2. The U.S. unemployment rate.

Employment Cost Index (ECI)

Employment cost index measures wages and inflation and provides the most comprehensive analysis of worker compensation, including wages, salaries, and fringe benefits. The ECI is one of the Fed's favorite quarterly economic statistics.

Consumer Spending Indicators

Retail sales is a significant consumer spending indicator for foreign exchange traders, as it shows the strength of consumer demand as well as consumer confidence. component in the calculation of other economic indicators, such as GNP and GDP.

Generally, the most commonly used employment figure is not the monthly unemployment rate, which is released as a percentage, but the nonfarm payroll rate. The rate figure is calculated as the ratio of the difference between the total labor force and the employed labor force, divided by the total labor force. The data is more complex, though, and it generates more information. In foreign exchange, the standard indicators monitored by traders are the unemployment rate, manufacturing payrolls, nonfarm payrolls, average earnings, and average workweek. Generally, the most significant employment data are manufacturing and nonfarm payrolls, followed by the unemployment rate.

Auto Sales

Despite the importance of the auto industry in terms of both production and sales, the level of auto sales is not an economic indicator widely followed by foreign exchange traders. The American automakers experienced a long,

steady market share loss, only to start rebounding in the early 1990s. But car manufacturing has become increasingly internationalized, with American cars being assembled outside the United States and Japanese and German cars assembled within the United States. Because of their confusing nature, auto sales figures cannot easily be used in foreign exchange analysis.

Leading Indicators

The leading indicators consist of the following economic indicators:

- average workweek of production workers in manufacturing;
- average weekly claims for state unemployment;
- new orders for consumer goods and materials (adjusted for inflation);
- vendor performance (companies receiving slower deliveries from suppliers);
- contracts and orders for plant and equipment (adjusted for inflation);
- new building permits issued;
- change in manufacturers' unfilled orders, durable goods;
- change in sensitive materials prices.

Personal Income

is the income received by individuals, nonprofit institutions, and private trust funds. Components of this indicator include wages and salaries, rental income, dividends, interest earnings, and transfer payments (Social Security, state unemployment insurance, and veterans' benefits). The wages and salaries reflect the underlying economic conditions.

This indicator is vital for the sales sector. Without an adequate personal income and a propensity to purchase, consumer purchases of durable and nondurable goods are limited.

For the Forex traders, personal income is not significant.

4.3. Financial and Sociopolitical Factors

The Role of Financial Factors

Financial factors are vital to fundamental analysis. Changes in a government's monetary or fiscal policies are bound to generate changes in the economy, and these will be reflected in the exchange rates. Financial factors should be triggered only by economic factors. When governments focus on different aspects of the economy or have additional international responsibilities, financial factors may have priority over economic factors. This was painfully true in the case of the European Monetary System in the early 1990s. The realities of the marketplace revealed the underlying artificiality of this approach. Using the interest rates independently from the real economic environment translated into a very expensive strategy.

Because foreign exchange, by definition, consists of simultaneous transactions in two currencies, then it follows that the market must focus on two respective interest rates as well. This is the interest rate differential, a basic factor in the markets. Traders react when the interest rate differential changes, not simply when the interest rates themselves change. For example, if all the G-5 countries decided to simultaneously lower their interest rates by 0.5 percent, the move would be neutral for foreign exchange, because the interest rate differentials would also be neutral.

Of course, most of the time the discount rates are cut unilaterally, a move that generates changes in both the interest differential and the exchange rate. Traders approach the interest rates like any other factor, trading on expectations and facts. For example, if rumor says that a discount rate will be cut, the respective currency will be sold before the fact. Once the cut occurs, it is quite possible that the currency will be bought back, or the other way around. An unexpected change in interest rates is likely to trigger a sharp currency move. "Buy on the rumor, sell on the fact...".

Other factors affecting the trading decision are the time lag between the rumor and the fact, the reasons behind the interest rate change, and the perceived importance of the change. The market generally prices in a discount rate change that was delayed. Since it is a fait accompli, it is neutral to the market. If the discount rate was changed for political rather than economic reasons, what is a common practice in the European Monetary System, the markets are likely to go against the central banks, sticking to the real fundamentals rather than the political ones. This happened in both September 1992 and the summer of 1993, when the European central banks lost unprecedented amounts of money trying to prop up their currencies, despite having high interest rates. The market perceived those interest rates as artificially high and, therefore, aggressively sold the respective currencies. Finally, traders deal on the perceived importance of a change in the interest rate differential.

Political Events and Crises

Political events generally take place over a period of time, but political crises strike suddenly. They are almost always, by definition, unexpected. Currency traders have a knack for responding to crises. Speed is essential; shooting from the hip is the only fighting option. The traders' reflexes take over. Without fast action, traders can be left out in the cold. There is no time for analysis, and only a split second, at best, to act. As volume drops dramatically, trading is hindered by a crisis. Prices dry out quickly, and sometimes the spreads between bid and offer jump from 5 pips to 100 pips. Getting back to the market is difficult.

CHAPTER 5
Technical Analysis

5.1. The Fundamentals Of Technical Analysis

Technical analysis is appointed to analyze market movement (the movement of prices, volumes and open interests) using the information obtained for a past time. Mainly, it is the chart study of past behavior of currencies prices in order to forecast their future performance. It is one of the most significant tools available for the forecasting of financial markets. Such analysis has been an increasingly utilized forecasting tool over the last two centuries.

The main strength of technical analysis is the flexibility with regard to the underlying instrument, regarding the markets and regarding the time frame. A trader who deals several currencies but specializes in one may easily apply the same technical expertise to trading another currency. A trader who specializes in spot trading can make a smooth transition to dealing currency futures by using chart studies, because the same technical principles apply over and over again, regardless of the market. Finally, different players have different trading styles, objectives, and time frames.

Technical analysis is easy to compute what is important while the technical services are becoming increasingly sophisticated and reasonably priced.

Prior to this historic open market intervention, technical analysis provided ample selling signals.

Price

The Fundamental Principles of Technical Analysis are based on the Dow Theory with the following main thesis:

1. The price is a comprehensive reflection of all the market forces. At any given time, all market information and forces are reflected in the currency prices.
2. Price movements are historically repetitive.
3. Price movements are trend followers.

4. The market has three trends: primary, secondary, and minor. The primary trend has three phases: accumulation, run-up/run-down, and distribution. In the accumulation phase the shrewdest traders enter new positions. In the run-up/run-down phase, the majority of the market finally "sees" the move and jumps on the bandwagon. Finally, in the distribution phase, the keenest traders take their profits and close their positions while the general trading interest slows down in an overshooting market. The secondary trend is a correction to the primary trend and may retrace one-third, one-half or two-thirds from the primary trend.

5. Volume must confirm the trend.

6. Trends exist until their reversals are confirmed. Figure 5.1. shows example of reversals in a bearish currency market. The buying signals occur at points A and B when the currency exceeds the previous highs.

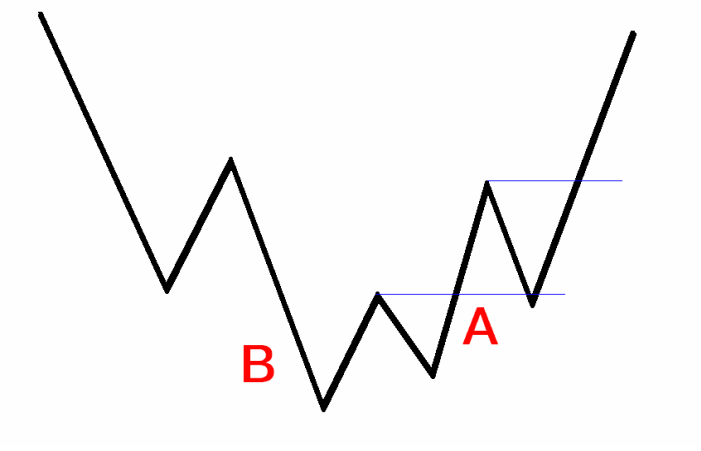

Figure 5.1. A reversal of bearish currency

Cycles of currency price change are the propensity for events to repeat themselves at roughly the same time and are an important ground to justify the Dow Theory.

Cycle identification is a powerful tool that can be used in both the long and the short term. The longer the term, the more significance a cycle has. Figure 5.2. shows a series of three cycles. The top of the cycle (C) is called the crest and the bottom (T) is known as trough. Analysts measure cycles from trough to trough.

Cycles are gauged in terms of amplitude, period, and phase. The amplitude shows the height of the cycle, the period shows the length of the cycle, the phase shows the location of a wave trough.

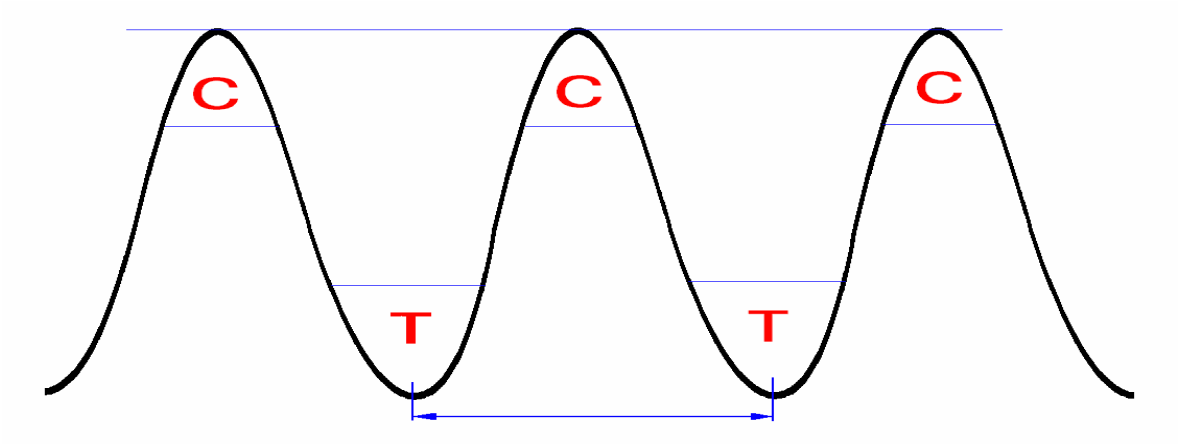

Figure 5.2. The structure of cycles

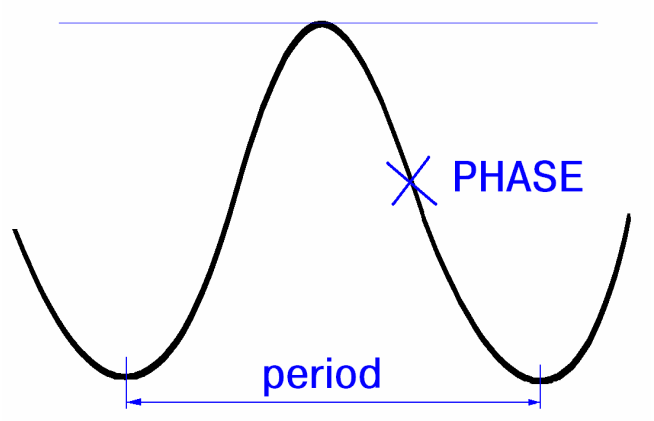

Figure 5.3. The two gauging measures of a cycle: period and phase.

Volume and Open Interest

Volume consists of the total amount of currency traded within a period of time, usually one day. For example, by year 2000, the total foreign currency daily trading volume was $1.4 trillion. But traders are naturally more interested in the volume of specific instruments for specific trading periods, because large trading volume suggests that there is interest and liquidity in a certain market, and low volume warns the trader to veer away from that market.

The risks of a low-volume market are usually very difficult to quantify or hedge. In addition, certain chart formations require heavy trading volume for successful development. An example is the head-and-shoulder formation. Therefore, despite its obvious importance, volume is not easy to quantify in all foreign exchange markets.

One method to estimate volume is to extrapolate the figures from the futures market. Another is "feeling" the size of volume based on the number

of calls on the dealing systems or phones, and the "noise" from the brokers' market.

Open interest is the total exposure, or outstanding position, in a certain instrument. The same problems that affect volume are also present here. As it was already mentioned, figures for volume and open interest are available for currency futures. If you have access to printed or electronic charts on futures, you will be able to see these numbers plotted at the bottom of the futures charts.

Volume and open interest figures are available from different sources, although one day late such as the newswires (Bridge Information Systems, Reuters, Bloomberg), newspapers (the Wall Street Journal, the Journal of Commerce), Weekly printed charts (Commodity Perspective, Commodity Trend Service).

5.2. Types of charts

Line Chart

The line chart is the original type of chart. In order to plot it, a line connects single prices for a selected time period. The most popular line chart is the daily chart. Although any point in the day can be plotted, most traders focus on the closing price, which they perceive as the most important. (See Figure 5.4.) But an immediate problem with the daily line chart is the fact that it is impossible to see the price activity for the balance of the day.

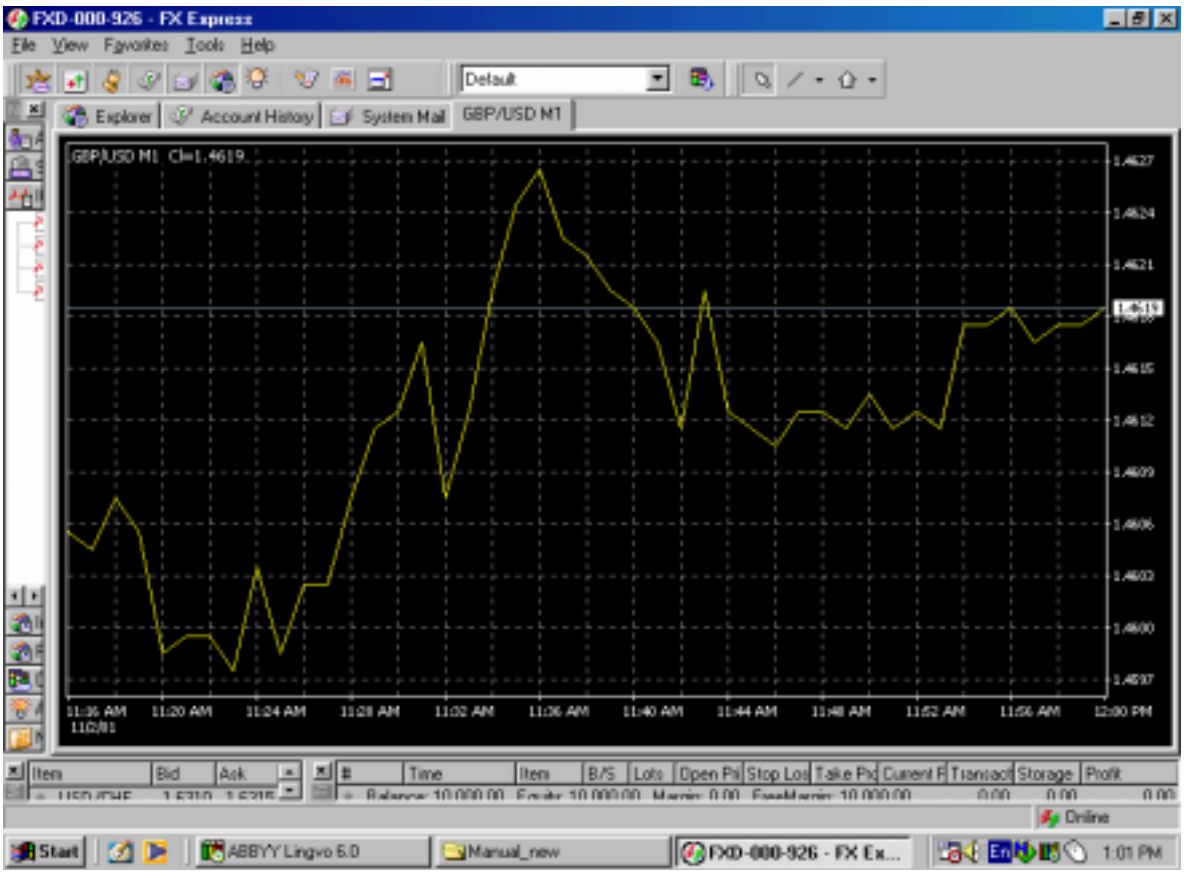

Figure 5.4. An example of the line chart

Line charts are considered for technical analysis because due to the sophistication of current charting services, daily price activity does not need to be lost.

Daily line charts are useful when looking for the big picture or the major trend because, without line charts, intraday activity would be-come an unimportant detail. When plotted over a long stretch of time, such as several years, a line chart is easier to visualize. Also, technical analysis goes well beyond chart formation; in order to execute certain models and techniques, line charts are better suited than any of the other charts.

However the line chart is a continuous chart, and this is a disadvantage because price gaps cannot be charted on a continuous chart.

Bar Chart

The bar chart is arguably the most popular type of chart currently in use. It consists of four significant points (See figure 5.5.):

- the high and the low prices, which are united by a vertical bar;
- the opening price, which is marked with a little horizontal line to the left of the bar;
- the closing price, which is marked with a little horizontal line to the right of the bar.

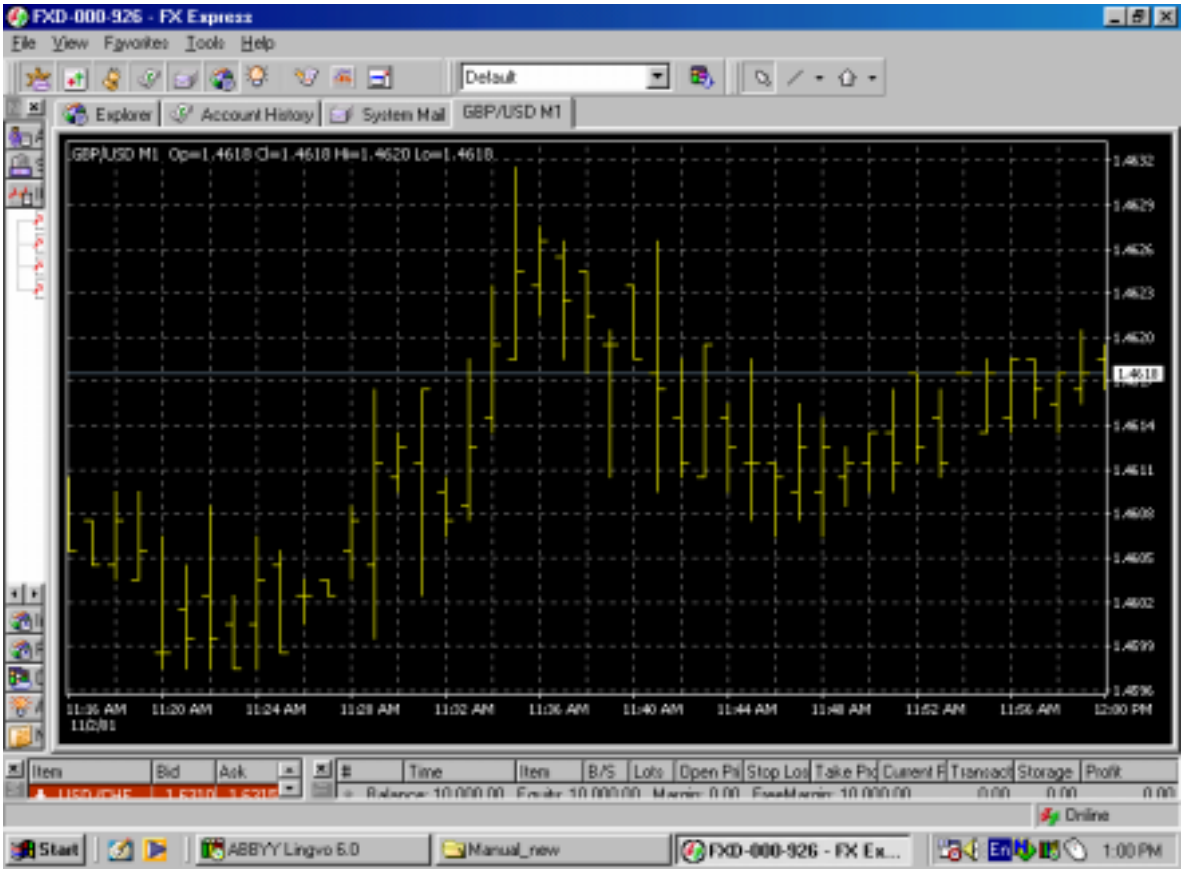

Figure 5.5. An example of the bar chart.

The opening price is not always important for analysis.

Bar charts have the obvious advantage of displaying the currency range for the period selected. The most popular period is daily, followed by weekly. Other periods may be selected as well. An advantage of this chart is that, unlike line charts, the bar chart is able to plot price gaps that are formed in the currency futures market. Although the currency futures market trades around the clock, physically it is open for only about a third of the trading

day. (Chicago IMM is open for business 7:20 am to 2 pm CDT.) Therefore, price gaps may occur between two days' price ranges. Incidentally, the bar chart is the chart of choice among currency futures traders.

Candlestick Chart

The candlestick chart is closely related to the bar chart. It also consists of four major prices: high, low, open, and close. (See Figure 5.6.) In addition to the common readings, the candlestick chart has a set of particular interpretations. It is also easier to view.

Figure 5.6. An example of the candlestick chart

The opening and closing prices form the body (jittai) of the candlestick. To indicate that the opening was lower than the closing, the body of the bar is left blank. In its original form, the body was colored red. Current standard electronic displays allow you to keep it blank or select a color of your choice. If the currency closes below its opening, the body is filled. In its original form, the body was colored black, but the electronic displays allow you to keep it filled or to select a color of your choice.

The intraday (or weekly) direction on a candlestick chart can be traced by means of two "shadows": the upper shadow (uwakage) and the lower shadow (shitakage).

Just as with a bar chart, the candlestick chart is unable to trace every price movement during a day's activity.

5.3. Trends, Support and Resistance

Kinds Of Trends

The trend shows a pending direction of the market movement.

A trend may be:

1. Upward (See Figure 5.7.)
2. Downward (See Figure 5.8.)
3. Sideways, also known as a "flat market" or "trendless" (See Figure 5.9.)

Because the markets do not move in a straight line in any direction, but rather in zigzags, it is the direction of these peaks and troughs that creates the market trend. In addition to direction, trends are also classified by time frame: major or long-term trends, secondary or medium-term trends, and near-term or short-term trends. Any number of secondary and near-term trends may occur within a major trend. The time frames for each class vary widely. The Dow Theory suggests a one-year length for a major trend. Currently, for a major trend, the market expects a time span of over one year. Secondary trends should last for a matter of months, and short-term trends for a matter of weeks.

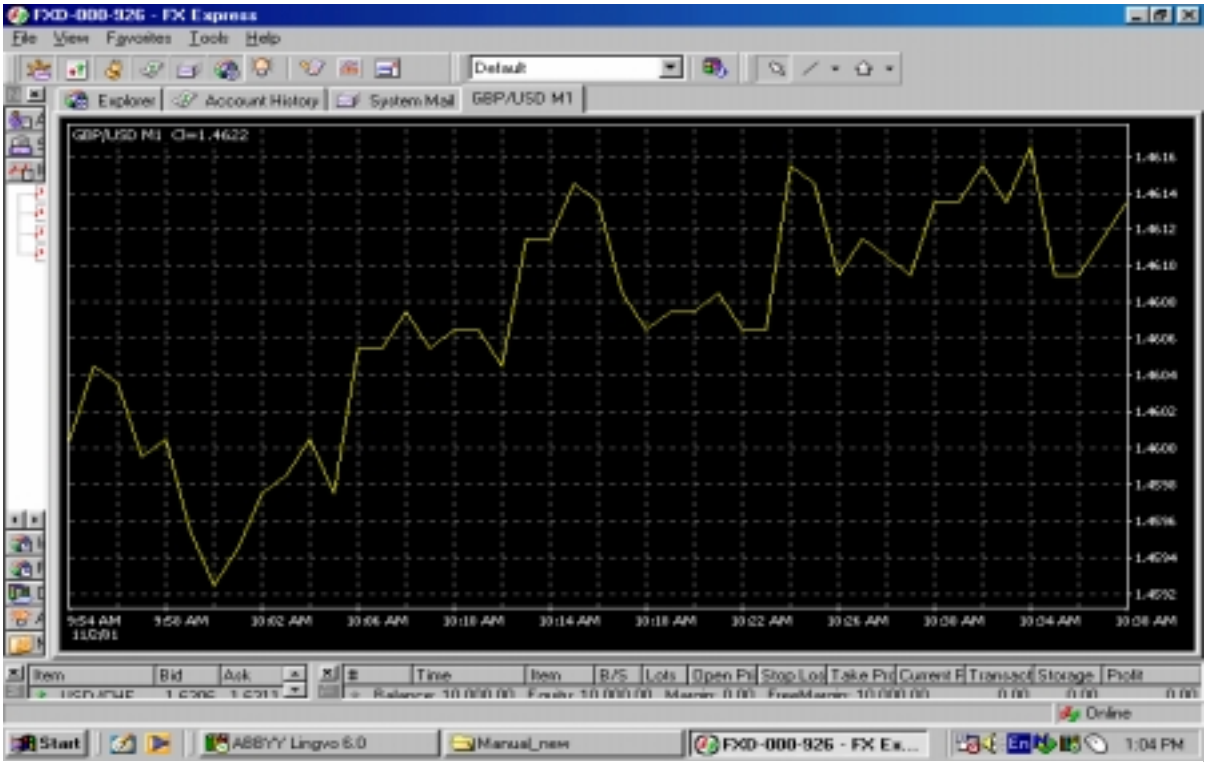

Figure 5.7. An example of the up trend

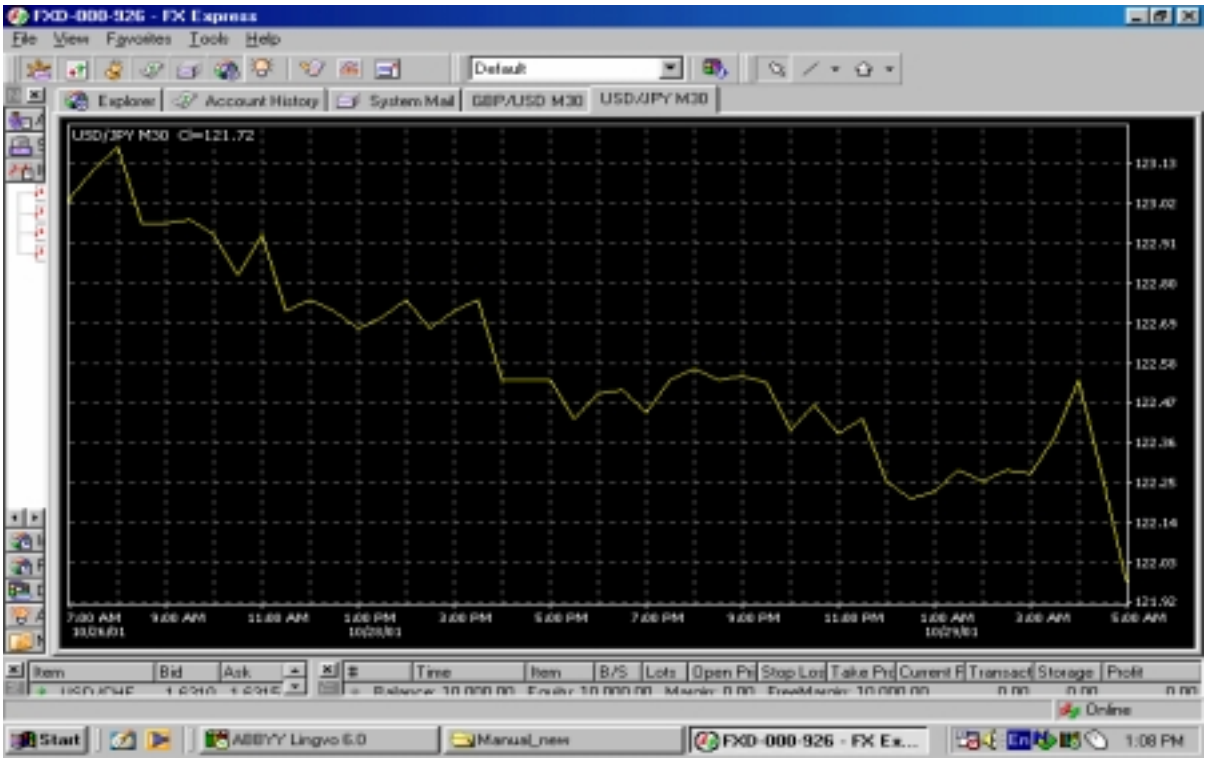

Figure 5.8. An example of the down trend

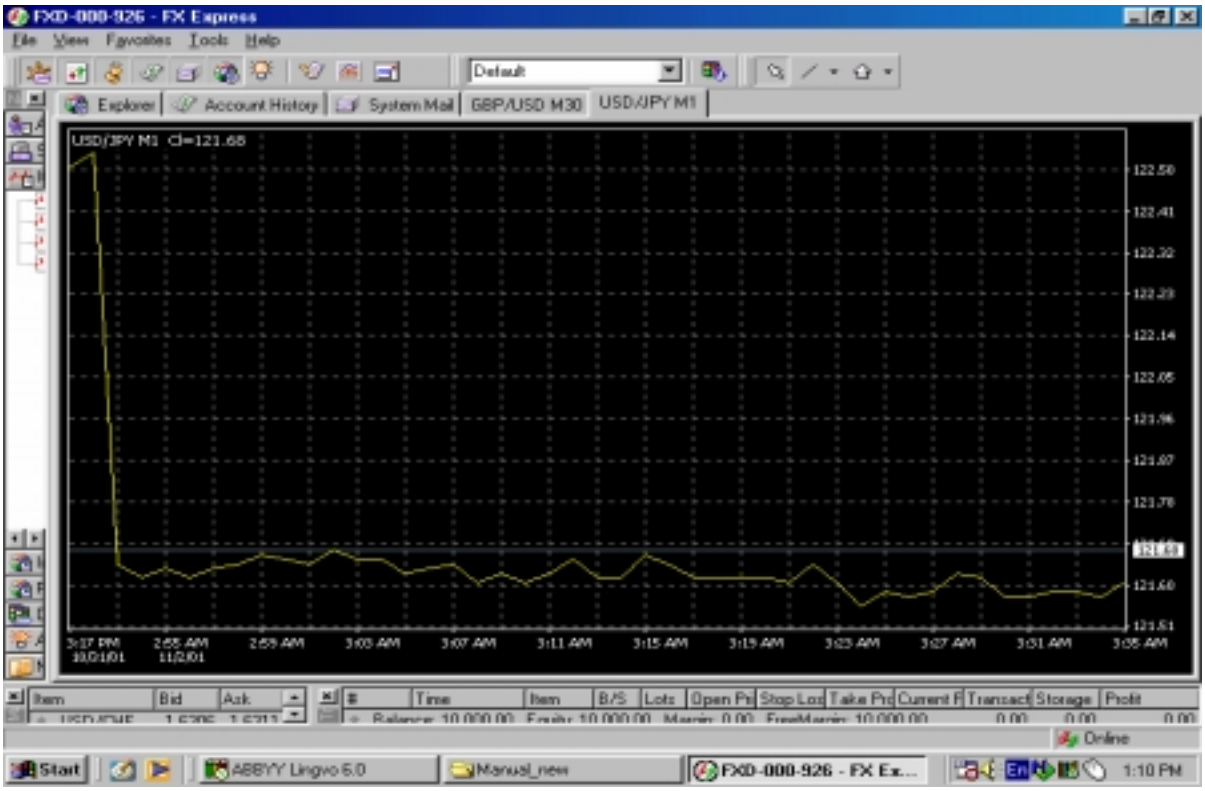

Figure 5.9. An example of the sideways trend

Percentage Retracement

Foreign currencies, like all the other financial instruments, do not move straight up or down, even in the healthiest of trends. Traders watch several percentage retracements, in search of price objectives.

There are three typical percentage retracements:

1. Charles Dow developed the traditional percentage retracements which are 1/3, 1/2, and 2/3; or 33 percent, 50 percent, and 66 percent. A retracement past 66 percent is considered to be a trend failure.
2. The Fibonacci ratios. These ratios are 0.382, 0.50, and 0.618, or approximately 38 percent, 50 percent, and 62 percent.
3. The Gann percentages attach importance to the one-eighth break-downs.

The Trendline

A trendline is the natural development in tracking a trend. It simply consists of a straight line connecting the significant highs (peaks) or the significant lows (troughs.) Following in the tracks of the trend directions, the trendlines may be classified as:

1. Rising trendlines. (See Figure 5.10.)
2. Declining trendlines. (See Figure 5.11.)
3. Sideways trendlines. (See Figure 5.12.)

To draw a trendline only two points are necessary and the third one is the contact point confirmation. The currency maintains its general direction and velocity. A trendline exists until it is broken as a result of a significal move of the price up or down. Hence, even after confirmation, the breakout is still likely to be followed by a period of consolidation It is relatively rare for a trendline to suddenly reverse its direction. If a consolidation period does indeed occur, the longer it lasts, the steeper the following rally will be. Breakouts from up trendlines tend to test the strength of the former support line, now turned into a resistance line.

A price filter of 3 percents serves usually to test the validity of the breakout.

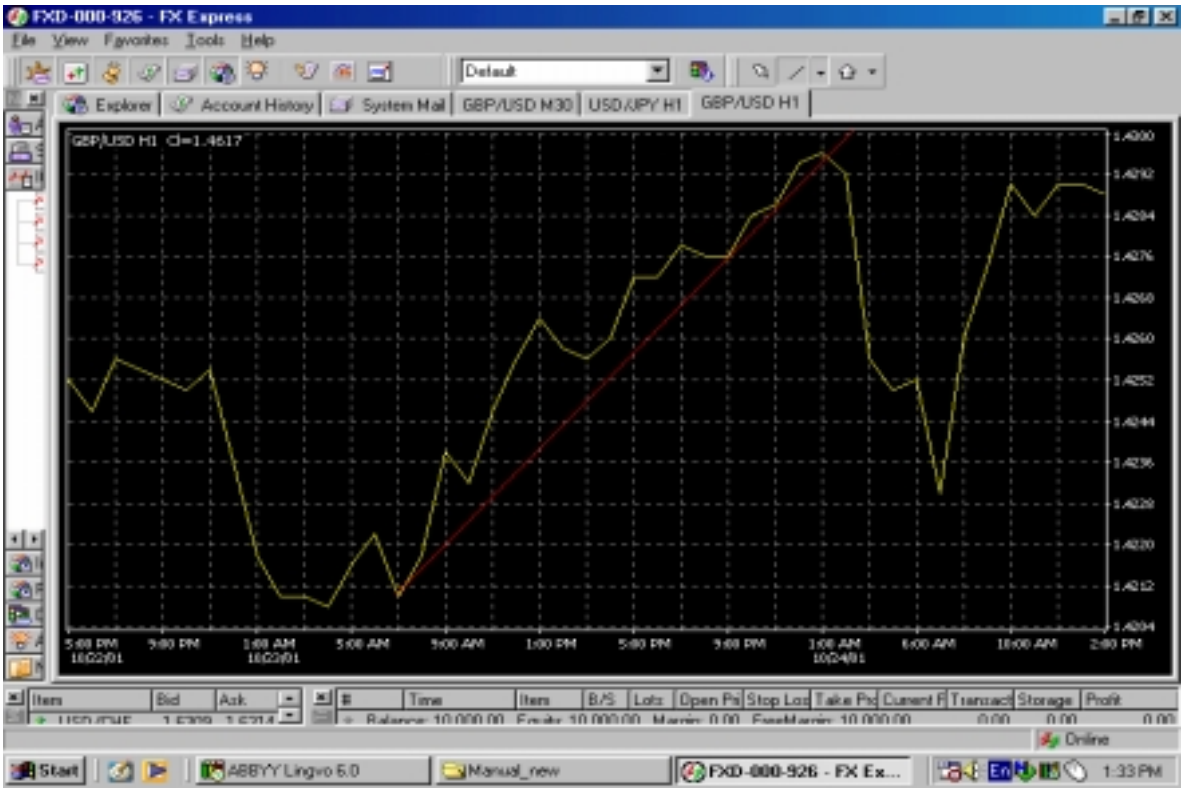

Figure 5.10. Example of a rising trendline.

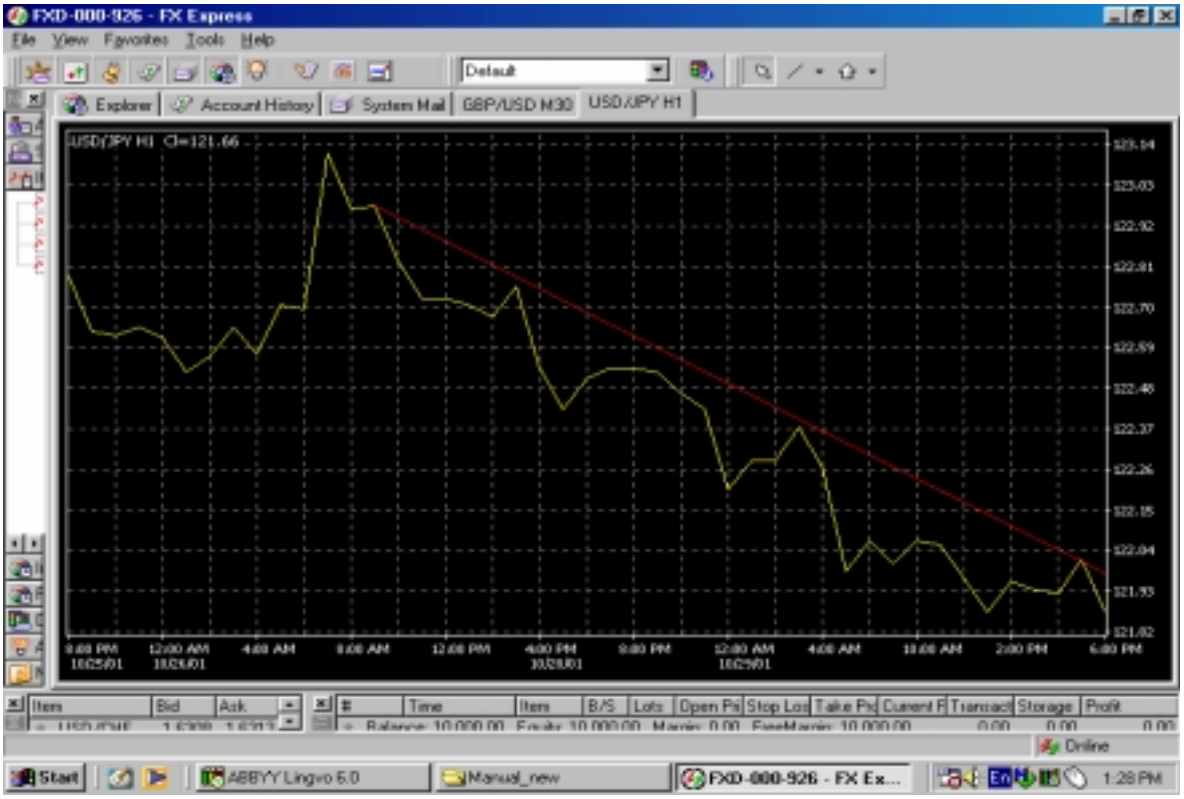

Figure 5.11. An example of the declining trendline.

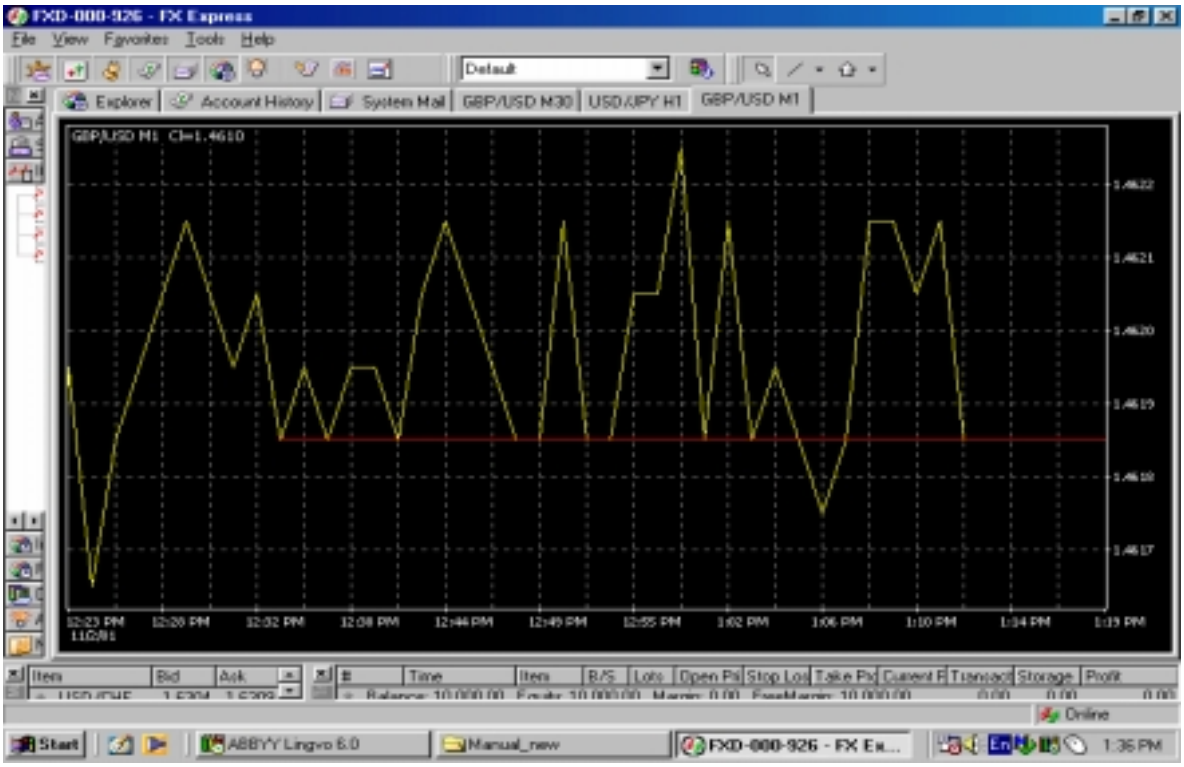

Figure 5.12. An example of the sideways trendline

The trendline and a line drawn along the opposite edge of the trend pattern about to be parallel to the trendline form the trade channel (See Figure 5.13.). Then the both lines are known as the channel lines.

Lines of Support and Resistance

The upper and bottom borders of a trade channel (See Figure 5.14.) forme lines of support and resistance. The peaks represent the price levels at which the selling pressure exceeds the buying pressure are known as resistance levels. The troughs, on the other hand, represent the levels at which the selling pressure succumbs to the buying pressure. They are called support levels. The longer the prices bounce off the support and resistance levels, the more significant the trend becomes. Trading volume is also very important, especially at the critical support and resistance levels. When the currency bounces off these levels under heavy volume, the significance of the trend increases. The importance of support and resistance levels goes beyond their original functions. If these levels are convincingly penetrated, they tend to turn into just the opposite. A firm support level, once it is penetrated on heavy volume, will likely turn into a strong resistance level. Conversely, a strong resistance turns into a firm support after being penetrated.

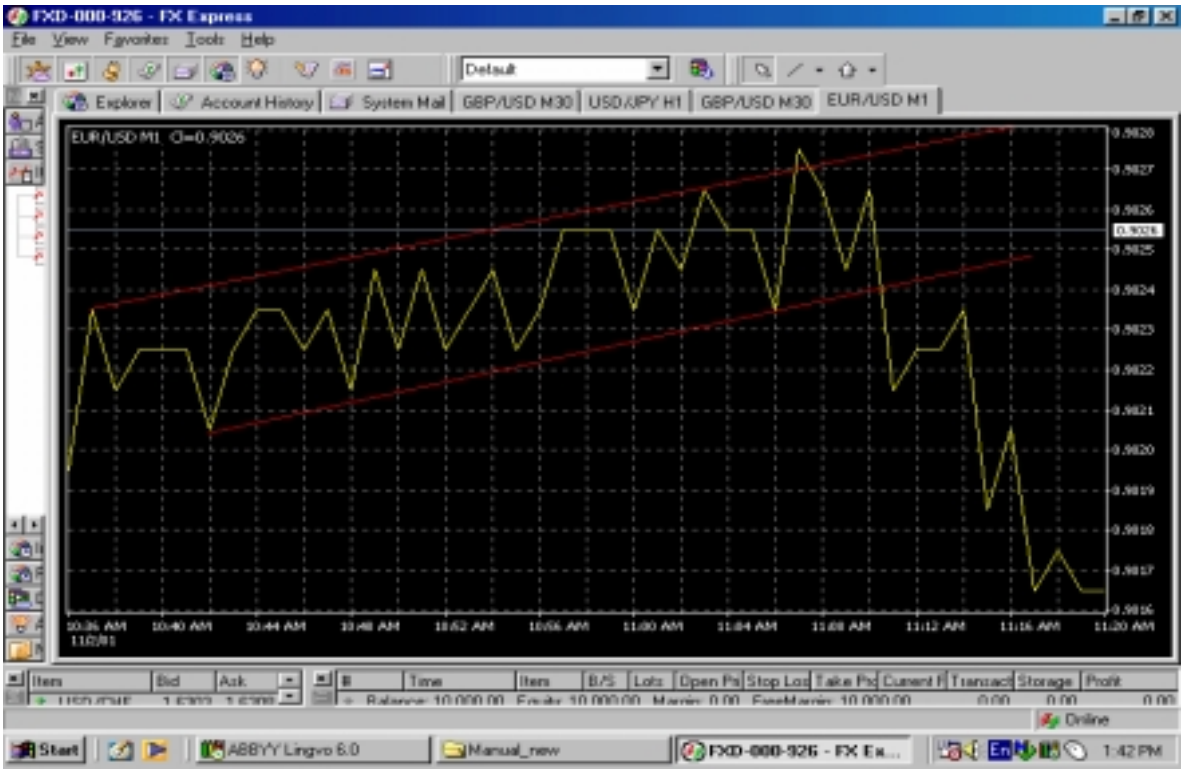

Figure 5.13. An example of the trade channel

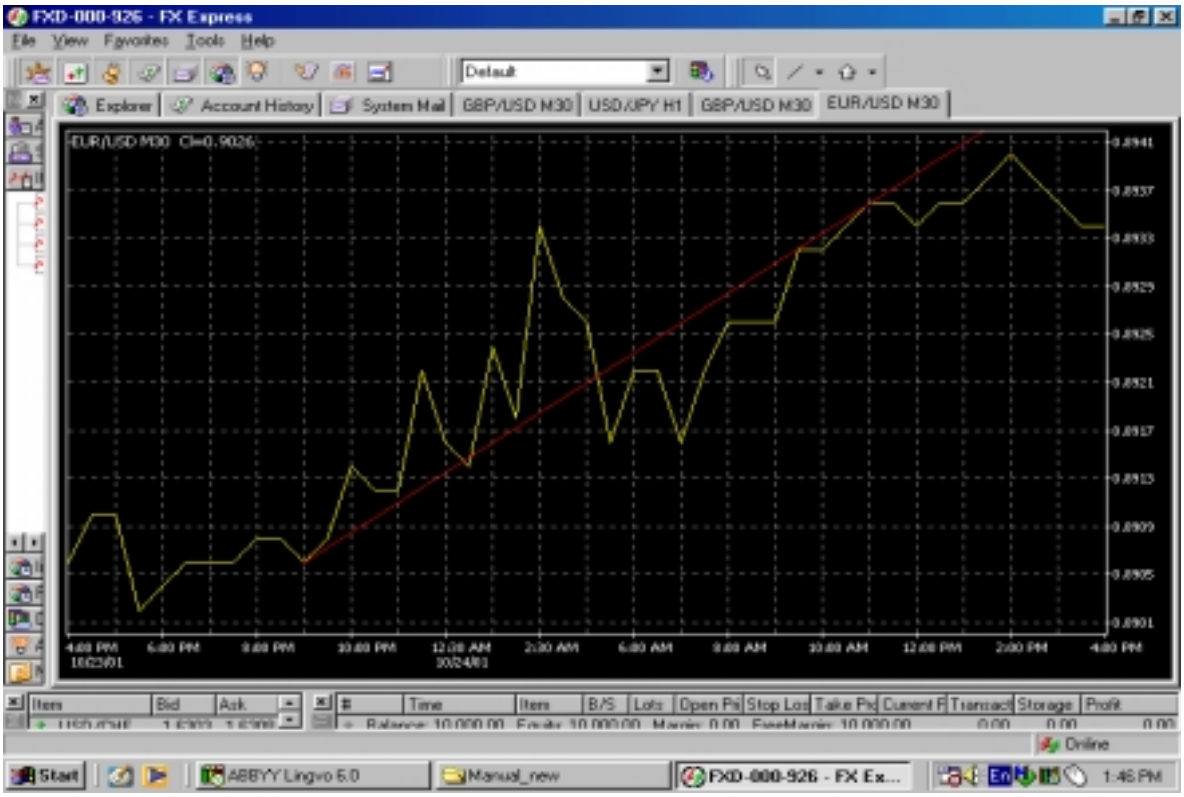

Figure 5.14. Example of the support turned into resistance

5.4. Trend Reversal Patterns

Chart formations are generally sorted on the basis of their significance to the current trend of the underlying currency. Formations signaling the end of the trend are known as reversal patterns. Conversely, chart formations that confirm that the underlying currency trend is intact are called continuation patterns.

The most significant trend reversal patterns are:

1. Head-and-shoulders and inverse head-and-shoulders.
2. Double tops and double bottoms.
3. Triple tops and triple bottoms.

Head-And-Shoulders

The head-and-shoulders pattern is one of the most reliable and well-known chart formations. It consists of three consecutive rallies. The first and third rallies—the shoulders—have about the same height, and the middle one—the head—is the highest. All three rallies are based on the same support line (or on the resistance line in the case of the reversed head-and-shoulders formation), known as the neckline.

Prior to point A, the neckline was a resistance line (see Figure 5.15.). Once the resistance line was broken, it turned into a significant support line. The price bounced off it twice, at points B and C. The neckline was eventually broken in point D, under heavy volume, and the trend reversal was confirmed. As the significant support line was broken, a retracement could be expected to retest the neckline (E), now a resistance line again. If the resistance line held, the price was expected to eventually decline to around level F, which was the price target of the head-and-shoulders formation. The target was approximately equal in amplitude to the distance between the top of the head and the neckline. The price target was measured from point D, where the neckline was broken. (See the dotted lines).

Signals Generated by the Head-and-shoulders Pattern

The head-and-shoulders formation provides excellent information:

1. The support line. This is based on points B and C.
2. The resistance line. After giving in at point D, the market may retest the neckline at point E.
3. The price direction. If the neckline holds the buying pressure at point E, then the formation provides information regarding the price direction: diametrically opposed to the direction of the head-and-shoulders (bearish).
4. The price target. This is provided by the confirmation of the formation (by breaking through the neckline under heavy trading volume).

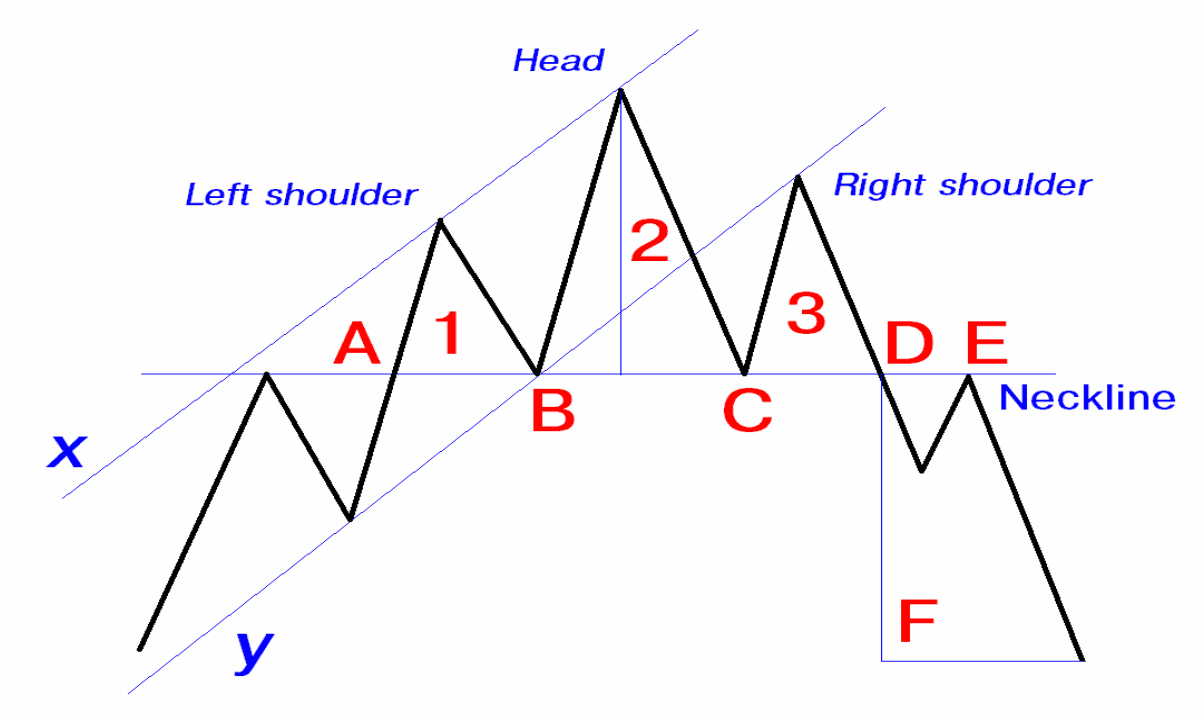

Figure 5.15. Diagram of a typical head-and-shoulders pattern

One of the main requirements of the successful development of this formation is that the breakout through the neckline occurs under heavy market volume. A breakout on light volume is a strong warning that it is a false breakout and will trigger a sharp backlash in the currency price. The time frame for this chart formation's evolution is anywhere from several weeks to several months. The intraday chart formations are not reliable. The longer the formation time is, the more significance should be attached to this pattern. The target is unlikely to be reached in a very short time frame. Whereas there is no immediate suggestion regarding the length of target reaching time, common sense would link it to the duration of development of the chart pattern.

It is reasonable to emphasize the importance of measuring the target from the point where the neckline was broken. There is a tendency among new technicians to measure the target price not only from under the neckline but also from the middle of the formation. This may happen as they measure the height of the head. Most head-and-shoulders formations, of course, look different from that in Figure 5.16. Prices fluctuate enough to forego any possibility of a clean-looking chart line. Also, the neckline is seldom a perfectly horizontal line.

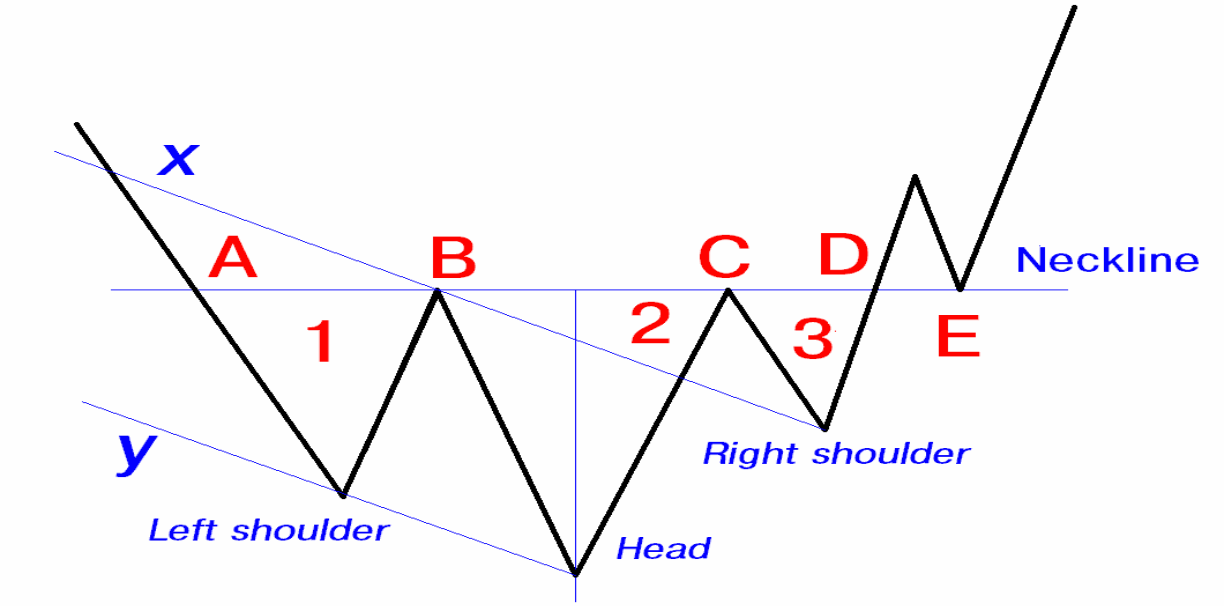

Figure 5.16. Diagram of a typical inverse head-and-shoulders pattern

Inverse Head-And-Shoulders

The inverse head-and-shoulders formation is a mirror image of the previous pattern. Therefore, you can apply the same characteristics, potential problems, signals, and trader's point of view from the preceding presentation. The underlying currency broke out of the downtrend ranged by the xx'-yy' channel. The currency retested the previous resistance line (the rally number 3), now turned into a support line. Among the three consecutive rallies, the shoulders (1 and 3) have approximately the same height, and the head is the lowest. Prior to point A, the neckline was a support line. Once this line was broken, it turned into a significant resistance line. The price bounced off the neckline twice, at points B and C. The neckline was eventually broken at point D, under heavy volume. As the significant resistance line was broken, a retracement could be expected to retest the neckline (E), now a support line again. If it held, the price was expected to eventually rise to around level F, which is the price target of the head-and-shoulders formation.

The price objective is approximately equal in amplitude to the distance between the top of the head and the neckline, and is measured from the breakout point D.

Double Top

Another very reliable and common trend reversal chart formation is the double top. As the name clearly and succinctly describes, this pattern consists of two tops (peaks) of approximately equal heights. (See Figure 5.17.). A parallel line is drawn against a resistance line that connects the two tops. We should think of this line as identical to the head-and-shoulders' neckline. As a resistance line, it is broken at point A. It turns into a strong support for price

level at C, but eventually fails at point E. The support line turns into a strong resistance line, which holds the market backlash at point F. The price objective is at level G, which is the average height of the double top formation, measured from point E.

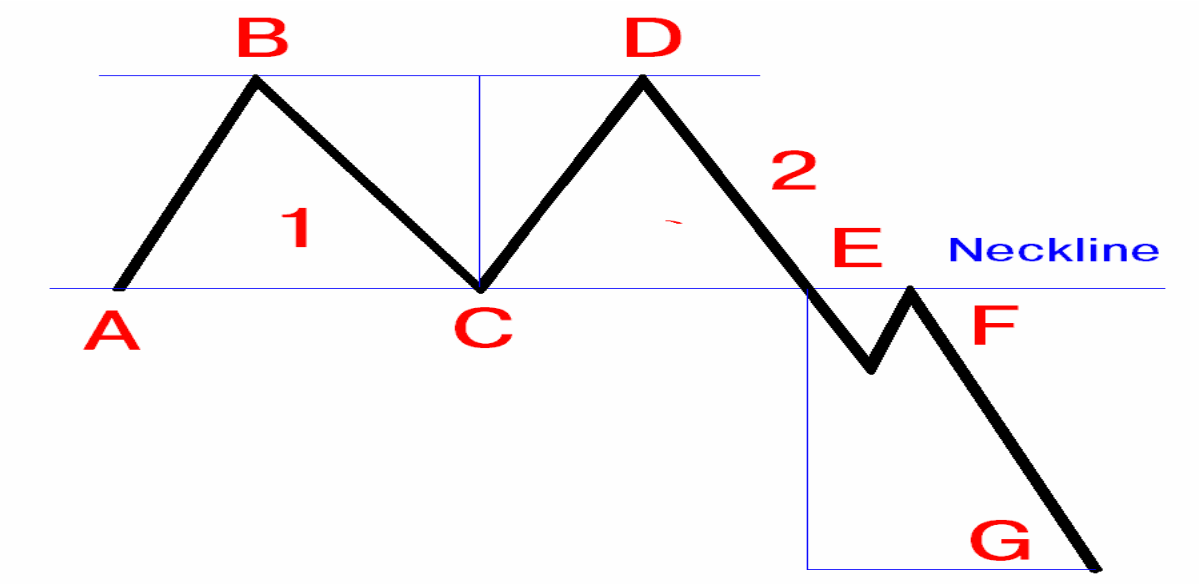

Figure 5.17. Diagram of a typical double-top formation

Signals Provided by the Double Top Formation

The double top formation provides information on:

1. The support line, set between points A and E.
2. The resistance line, set between points B and D.
3. The price direction. If the neckline holds the buying pressure at point F, then the formation provides information regarding the price direction: diametrically opposed to the direction of the peaks (bearish).
4. The price target, provided by the confirmation of the formation (by breaking through the neckline under heavy trading volume).

Exactly as in the case of the head-and-shoulders pattern, a vital requirement for the successful completion of the double-top formation is that the breakout through the neckline occurs under heavy market volume. Again, please remember that gauging volume in traditional ways is only possible in the currency futures market. Therefore, the trader must estimate the size of the cash market volume by extrapolating from

The currency futures' volume and the trading "noise." A breakout on light volume is a strong case for a false breakout, which would trigger a sharp backlash in the currency price. The time frame for this chart formation's evolution is anywhere from several weeks to several months. The intraday chart formations are less reliable. There is a strong correlation between the length of time to develop the pattern and the significance of the formation.

The target is unlikely to be reached in a very short time frame. There is no direct suggestion regarding the length of target reaching time; but foreign exchange common sense links it to the duration of development.

It is important to measure the target from the point where the neckline was broken. Avoid the trap of measuring the target price from the middle of the formation under the neckline. This may happen as you measure the average height of the formation.

Double Bottom

The double bottom formation is a mirror image of the previous pattern. (See Figure 5.18.). Therefore, one may apply the same characteristics, potential problems, signals, and trader's point of view from the preceding presentation.

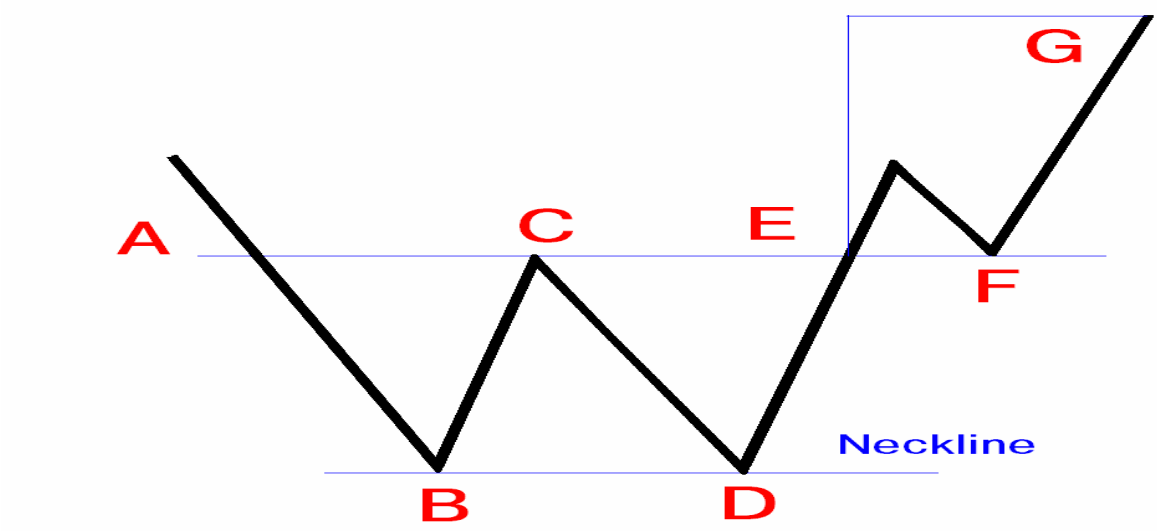

Figure 5.18. Diagram of a typical double-bottom formation

The bottoms have about the same amplitude. A parallel line (the neckline) is drawn against the line connecting the two bottoms (B and D.) As a support line, it is broken at point A. It turns into a strong resistance for price level at C, but eventually fails at point E. The resistance line turns into a strong support line, which holds the market backlash at point F. The price objective is at level G, which is the average height of the bottoms, measured from point E. (See the dotted lines).

Triple Top And Triple Bottom

The triple top is a hybrid of the head-and-shoulders and double-top trend reversal formations. (See Figure 5.19.) Conversely, the triple bottom is a hybrid of the inverse head-and-shoulders and double-bottom formations. (See Figure 5.20.) Consequently, they have the same characteristics, potential

problems, signals, and trader's point of view as the double top or double bottom, respectively.

As shown in Figure 5.19., in a typical triple-top formation, the tops have about the same height. A parallel line (the neckline) is drawn against the line connecting the three tops (B, D, and F.) As a resistance line, the neckline is broken at point A. It turns into a strong support for price levels at C and E, but eventually fails at point G. The support line turns into a strong resistance line, which holds the market backlash at point H. The price objective is at level I, which is the average height of the three tops formation, as measured from point D (see the dotted lines).

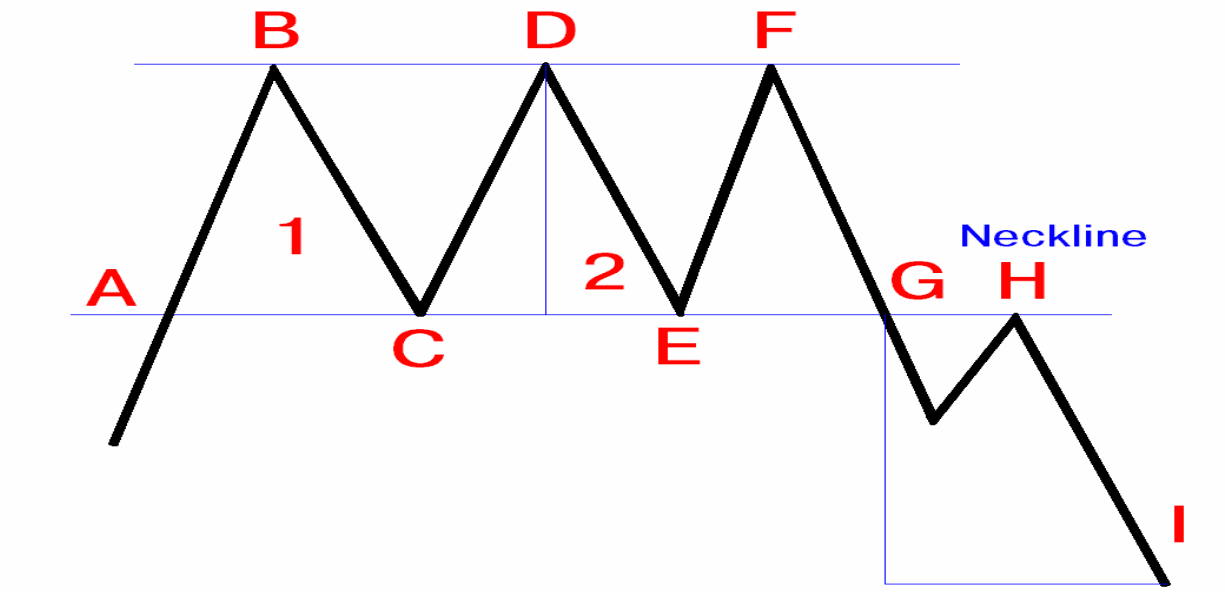

Figure 5.19. Diagram of a triple-top formation

As a double top, the formation fails at point E. The price moves up steeply toward point F. The resistance line is holding once more and the price drops sharply again toward point G. At this level, the market pressure is able to penetrate the support line. After a possible retest of the neckline, the prices drop further, to eventually reach the price objective.

The opposite is true for the triple bottom

As shown in Figure 5.19., in a triple-bottom formation, the bottoms have about the same amplitude. A parallel line (the neckline) is drawn against the line connecting the three bottoms (B, D, and F.) As a support line, the neckline is broken at point A. It turns into a strong resistance for price levels at C and E, but eventually fails at point G. The resistance line turns into a strong support line, which holds the market backlash at point H. The price objective is at level I, which is the average length of the triple-bottom formation, as measured from point D (see the dotted lines).

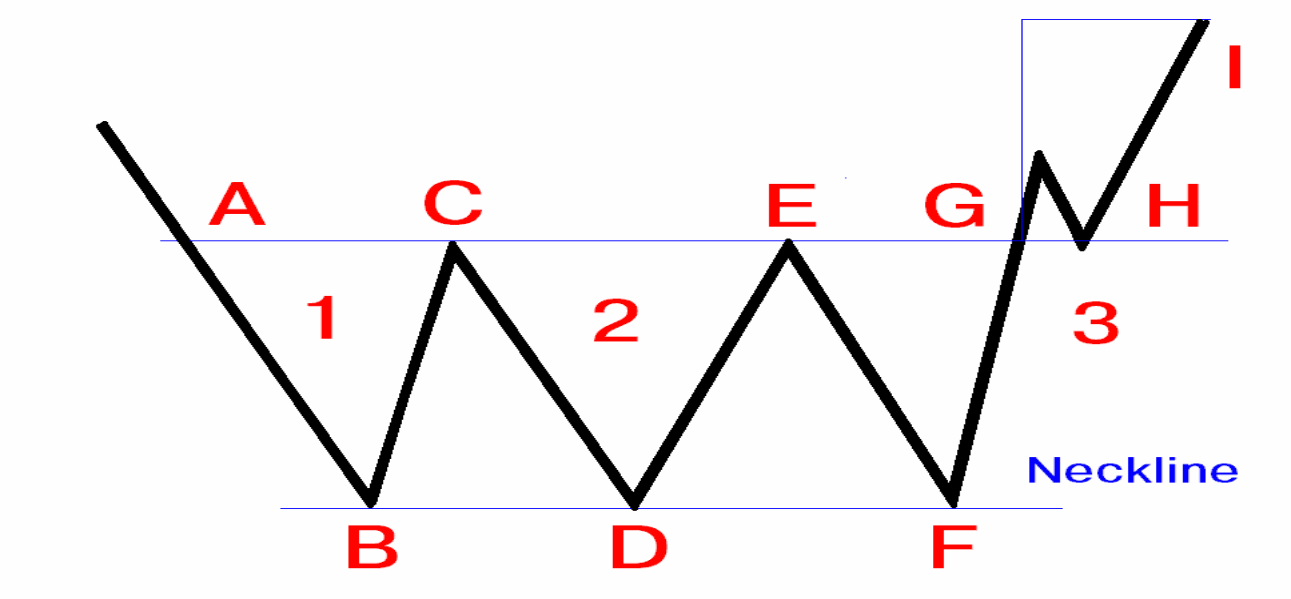

Figure 5.20. Diagram of a typical triple-bottom formation.

Rounded Top and Bottom Formations

The rounded top and bottom, also known as saucers consist of a very slow and gradual change in the direction of the market. These patterns reflect the indecision of the market at the end of a trend. The trading activity is slow. It is impossible to know when the formation is indeed completed, and not for a lack of trying. Like any other consolidation pattern, the longer it takes to complete, the higher the likelihood of a sharp price move in the new direction.

Diamond Formation

The diamond formation tends to occur at the top of the trend. The price activity may be outlined by a shape resembling a diamond (see Figure 5.21.). The increase and decrease in trading volume closely mimic the combination of divergent and convergent support and resistance lines. Upon breakout, volume picks up substantially. The price target is the height of the diamond, measured from the breakout point.

The head-and-shoulders, the double top and bottom and the triple top and bottom, due to their significance in trend reversals, are generally known as major reversal patterns.

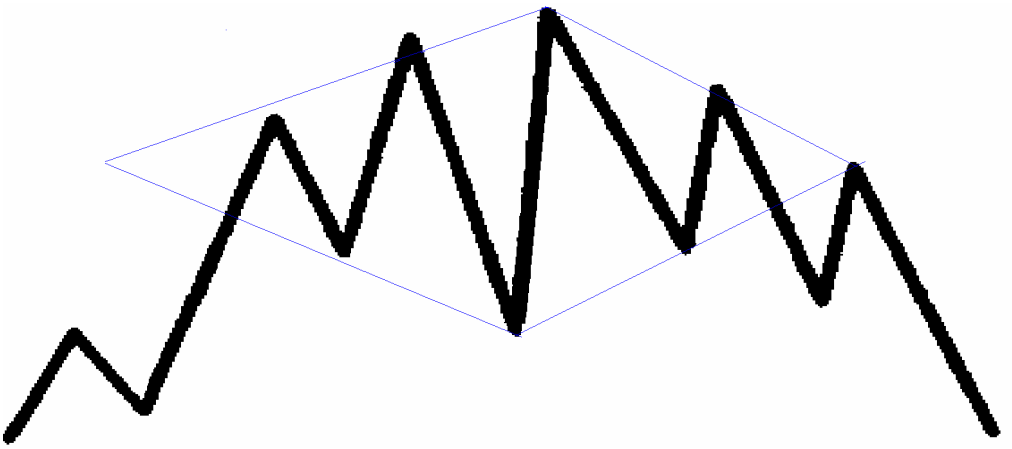

Figure 5.21. A scheme of a diamond reversal formation

5.5. Trend Continuation Patterns

Technical analysis provides charts that reinforce the current trends. These chart formations are known as continuation patterns. They consist of fairly short consolidation periods. The breakouts occur in the same direction as the original trend.

The most important continuation patterns are:
1. Flags
2. Pennants
3. Triangles
4. Wedges
5. Rectangles

Flag formation

The flag formation provides signals for direction and price objective. This formation represents a brief consolidation period within a solid and steep upward or downward trend. The consolidation itself is bordered by a support line and a resistance line, which are parallel to each other or very mildly converging, making it look like a flag (parallelogram) and tends to be sloped in the opposite direction from the slope of the original trend, or is simply flat. The previous sharp trend is resembles a flagpole.

If the original trend is going down, the formation is called a bearish flag. (See Figure 5.22.) As Figure 5.22. shows, the original trend is sharply down. The flagpole is measured between points A and B. The consolidation period occurs between the support line B to E and the resistance line C to D. When the price penetrates the support line at point E, the trend resumes its fall, with the price objective F, measured from E. The price target is of about equal amplitude with the flagpole's length (A to B), measured from the breakout point through the support line (B to E.)

In the numerical example, the height of the flagpole is measured as the difference between 140.00 and 120.00 equals 2000 pips. Once the support line is broken at 125.00, the price target is 105.00, as 2000 pips from 125.00.

Pennant Formation

The pennants are closely related to the flags. The same principles apply. The sole difference is that the consolidation area better resembles a pennant, as the support and resistance lines converge. If the original trend is bullish, then the chart pattern is a bullish pennant. In Figure 5.23., the pennant pole is A to B The pennant-shaped consolidation is framed by C, B, and D. When the market breaks through the resistance line B to D, the price objective is E. The amplitude of the target price is D to E, and it is equal to the pennant pole A to B. The price target measurement starts from the breakout point.

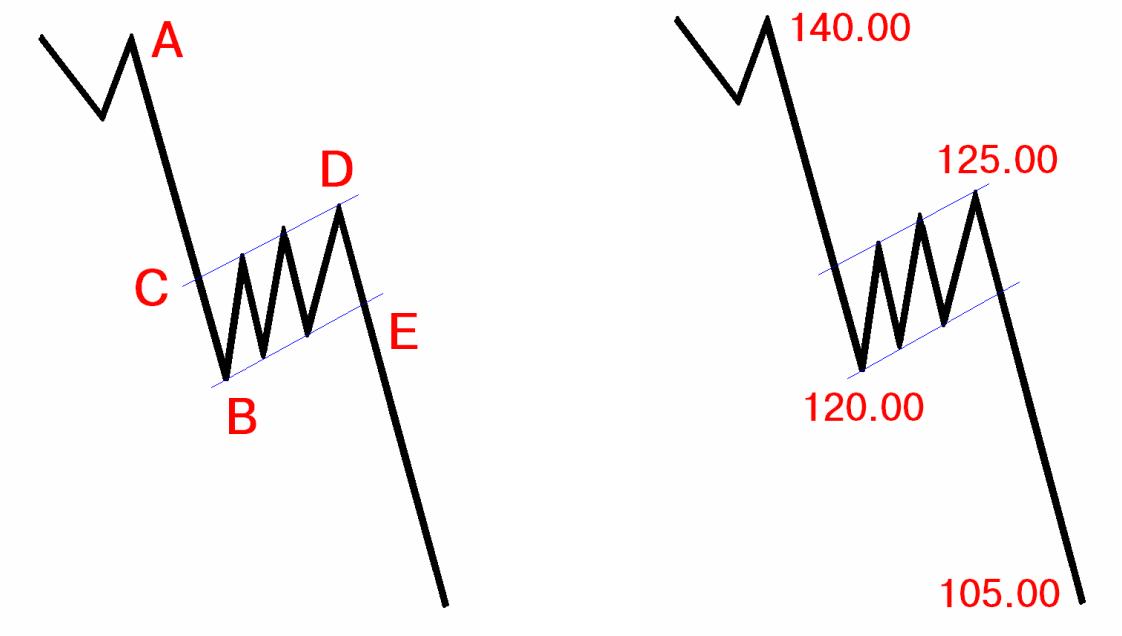

Figure 5.22. Diagram of a bear flag formation

In the numerical example, the height of the pennant pole is measured as the difference between 1.5500 and 1.4500, or 1000 pips. Once the resistance line is broken at 1.5200, the price target is 1.6200, as 1000 pips from 1.5200.

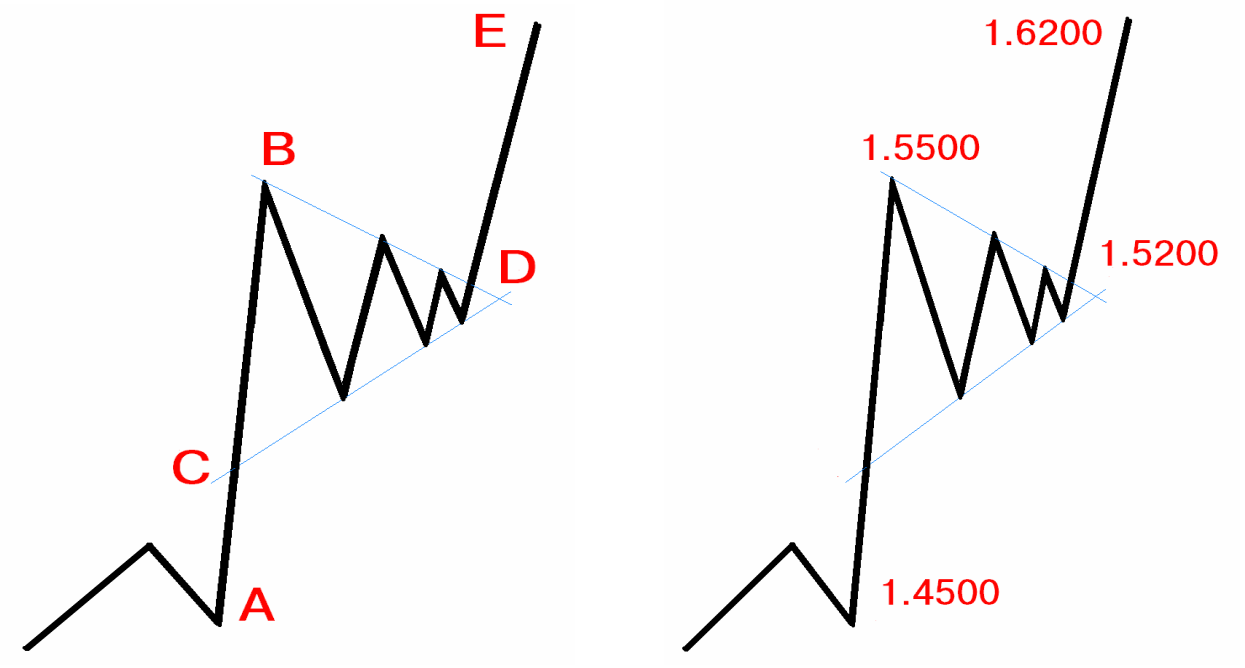

Figure 5.23. Diagram of a bullish pennant.

If the original trend is going down, then the formation is a bearish pennant. In Figure 5.24., the pennant pole is A to B. The pennant-shaped consolidation is framed by C, B and D. When the market breaks through the support line B to D, the objective price is E. The amplitude of the target price is D to E, and it is equal to the pennant pole A to B. The price target measurement starts from the breakout point.

In the numerical example, the height of the flagpole is measured as the difference between 139.00 and 119.00, or 2000 pips. Once the support line is broken at 120.00, the price target is 100.00, as 2000 pips from 120.00.

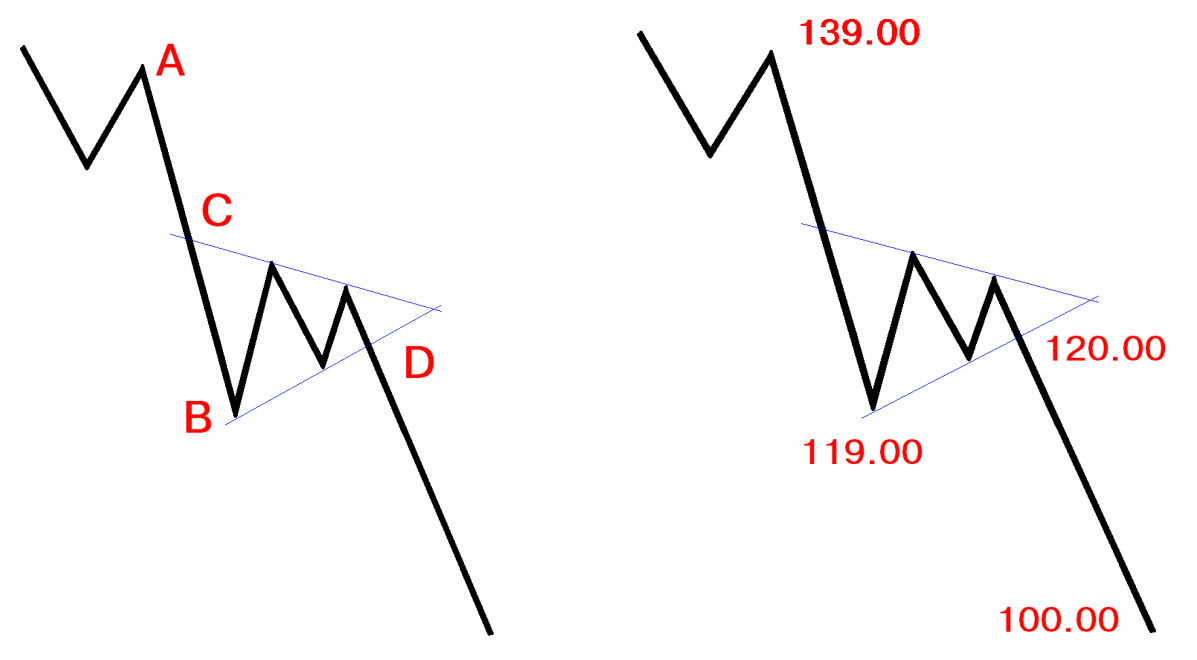

Figure 5.24. Diagram of a bearish pennant

Triangle Formation

Triangles can be visualized as pennants with no poles. There are four types of triangles: symmetrical, ascending, descending, and expanding (broadening).

A symmetrical triangle consists of two symmetrically converging support and resistance lines, defined by at least four significant points. (See Figure 5.25.) The two symmetrically converging lines suggest that there is a balance between supply and demand in the foreign exchange market. Consequently, a break may occur on either side. In the case of a bullish symmetrical triangle, the breakout will occur in the same direction, qualifying the formation as a continuation pattern.

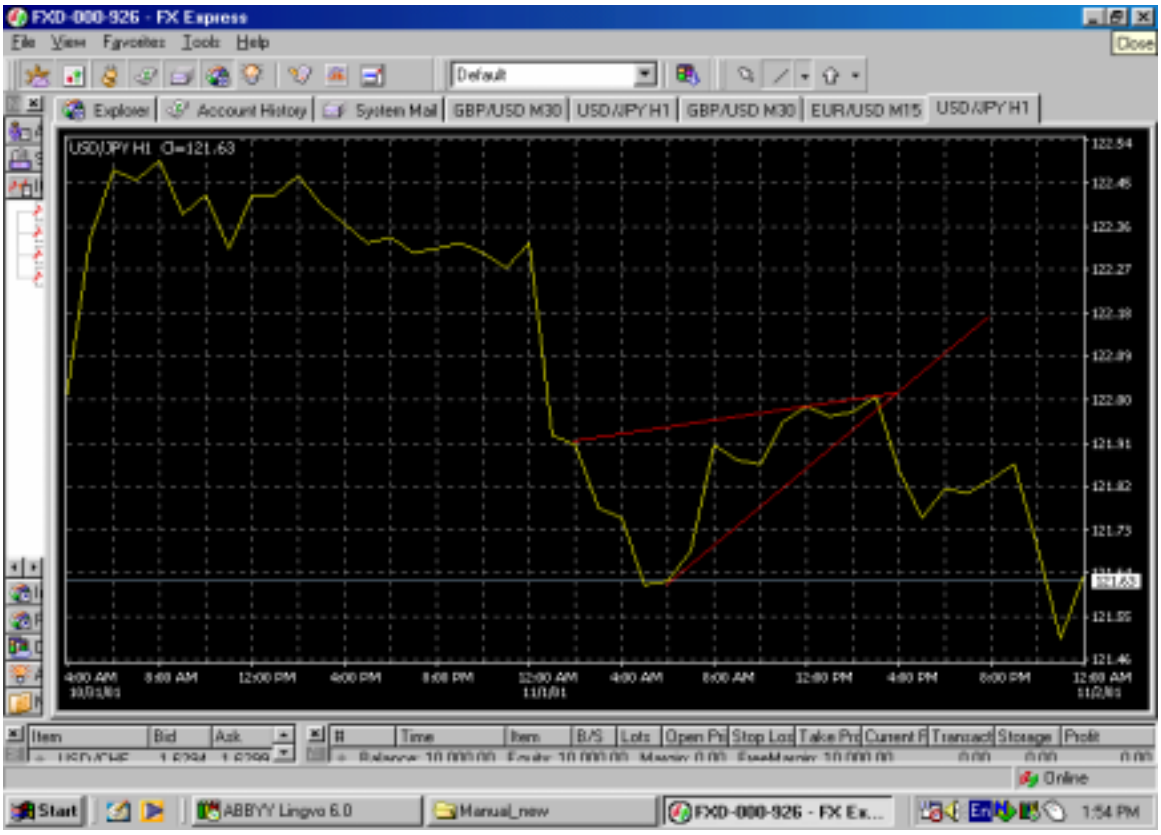

Figure 5.25. A market example of a bearish pennant

As Figure 5.26. shows, the converging lines are symmetrical. The declining line is defined by points B, D, and F. The rising support line is defined by points A, C, E, and G. The price target is either (1) equal to the width of the base of the triangle BB', measured from the breakout point H (HH'); or (2) at the intersection of line BI (which is a parallel line to the rising line AG) with the price line.

Trading volume will visibly decrease toward the end of the triangle, suggesting the ambivalence of the market. The breakout is accompanied by a rise in volume.

In the numerical example, the price objective is either 1.5500, as the difference between 1.5000 and 1.4000, measured from 1.4500 or 1.5300, as the difference between 1.5000 and 1.4000, measured from 1.4300.

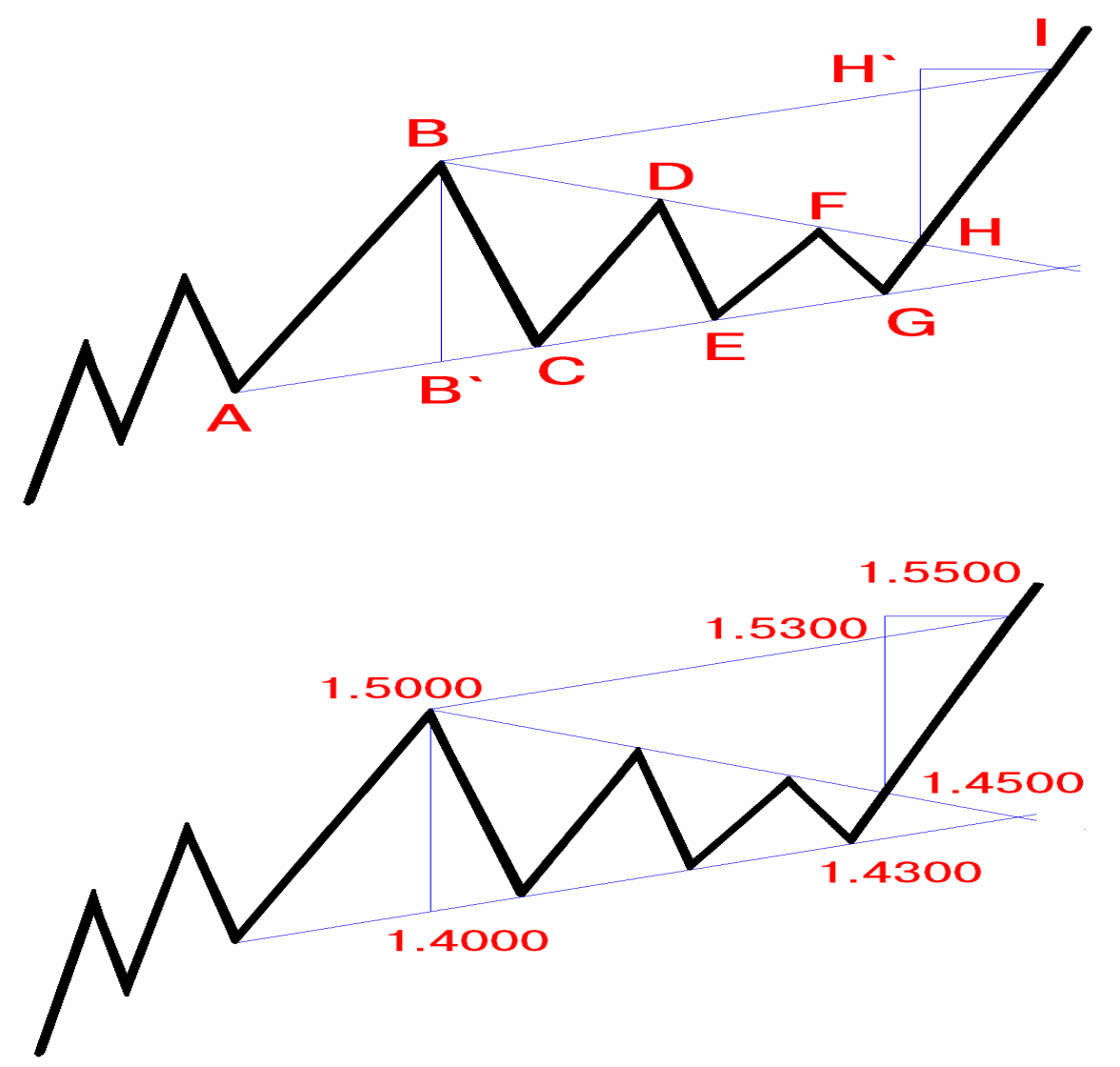

Figure 5.26. Diagram of a bullish symmetrical triangle

The ascending triangle consists of flat resistance line and a rising support line. (See Figure 5.27.) The formation suggests that demand is stronger than supply. The breakout should occur on the upside, and it consists of the width of the base of the triangle as measured from the breakout point. As you can see in Figure 5.28., the resistance line defined by points A, C, and E is flat. The converging bottom line, defined by points B, D, and F, is sloped upward. The price objective is the with of the base of the triangle (AA') measured above the resistance line from the breakout point G (GG'.) In the numerical example, the price objective is 106.00, as the 200-pip difference between 105.00 and 103.00, measured from 104.00.

Trading volume is decreasing steadily toward the tip of the triangle, but increases rapidly on the breakout.

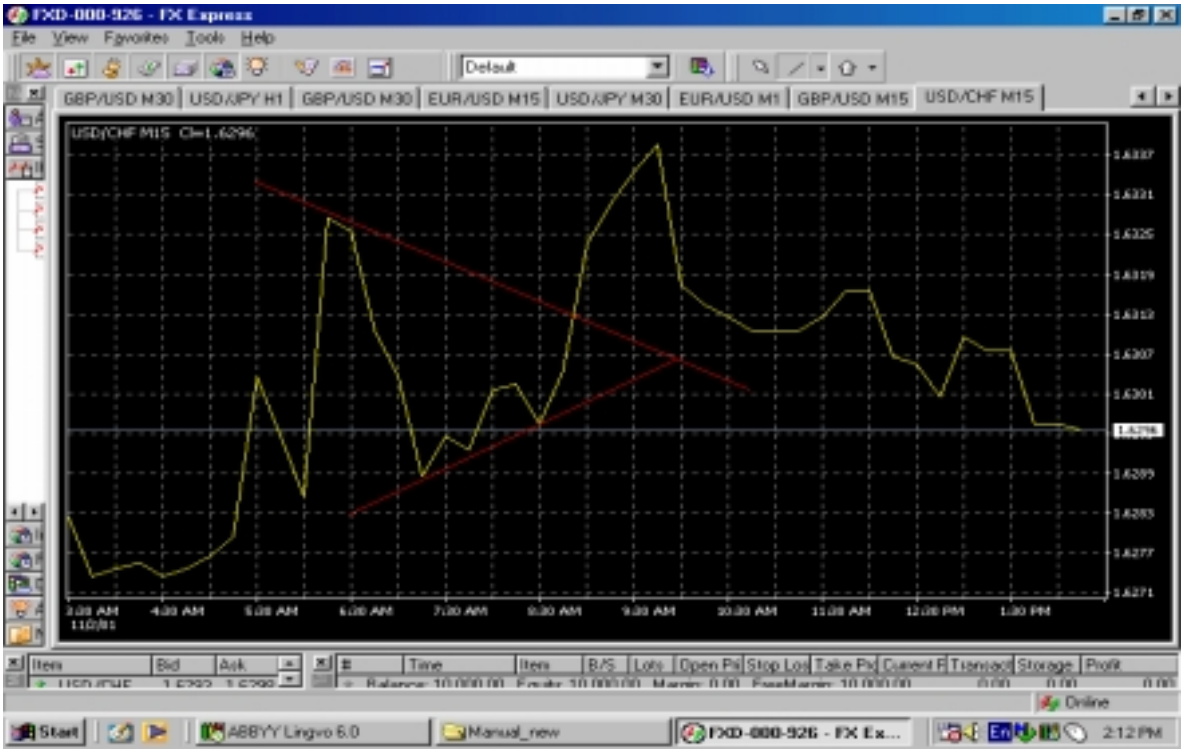

Figure 5.27. An example of a symmetrical triangle

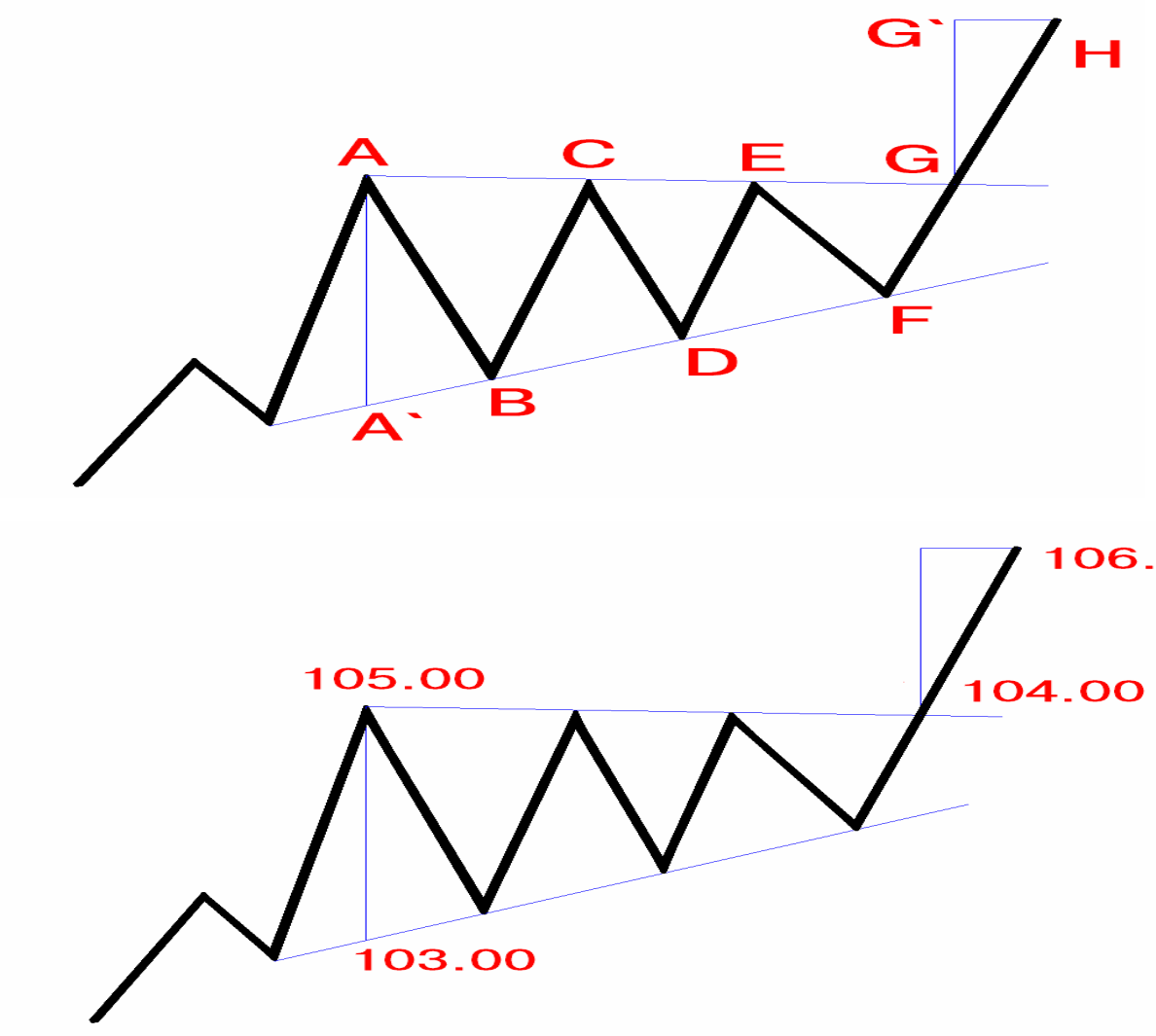

Figure 5.28. Diagram of typical ascending triangle

The descending triangle is simply a mirror image of the ascending triangle. It consists of a flat support line and a downward sloping resistance line. (See Figure 5.29.) This pattern suggests that supply is larger than demand. The currency is expected to break on the downside. The descending triangle also provides a price objective. This objective is calculated by measuring the width of the triangle base and then transposing it to the breakpoint. As shown in Figure 5.29., the support line, defined by points A, C, E, and G, is flat. The converging top line, defined by points B, D, F, and H, is sloped downward. The price objective is the width of the base of the triangle (AA'), measured above the support line from the breakout point I (IF.)

In the numerical example, the price objective is 1.3000, as the 1000-pip difference between 1.5000 and 1.4000, measured from 1.4000.

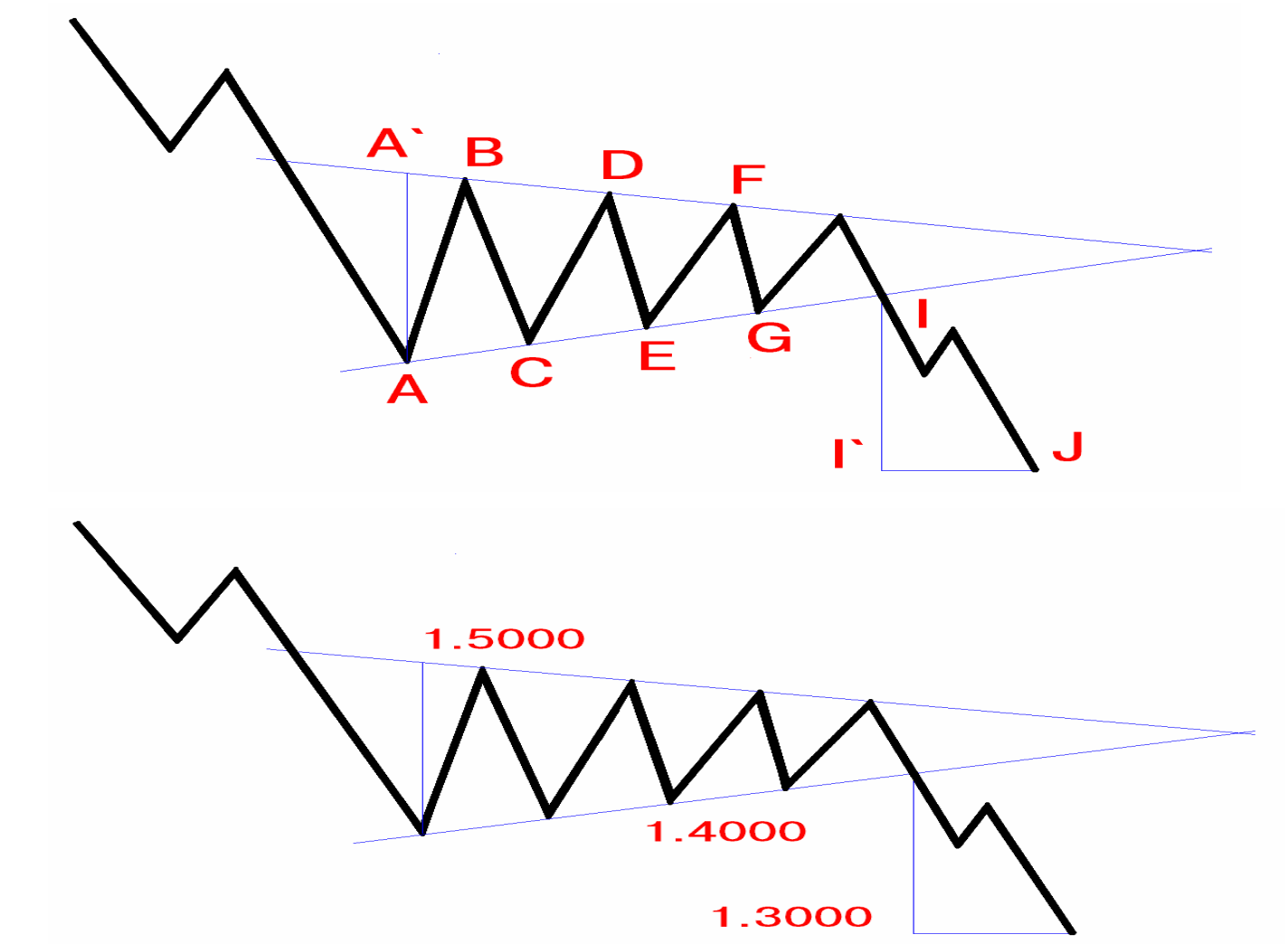

Figure 5.29. Diagram of a descending triangle

Trading volume is decreasing steadily toward the tip of the triangle, but increases rapidly on the breakout.

The expanding (broadening) triangle consists of a horizontal mirror image of a triangle, where the tip of the triangle is next to the original trend, rather than its base. (See Figure 5.30.) Volume also follows the horizontal mirror image switch and increases steadily as the chart formation develops. As shown in Figure 5.30, the bottom support line, defined by points B, D, and F, and the top line, defined by points A, C, and E, are divergent. The price objective should be the width, GG', of the base of the triangle, measured from the breakout point G.

In the numerical example, the price objective is 102.00, as the 100-pip difference between 101.00 and 100.00, measured from 101.00.

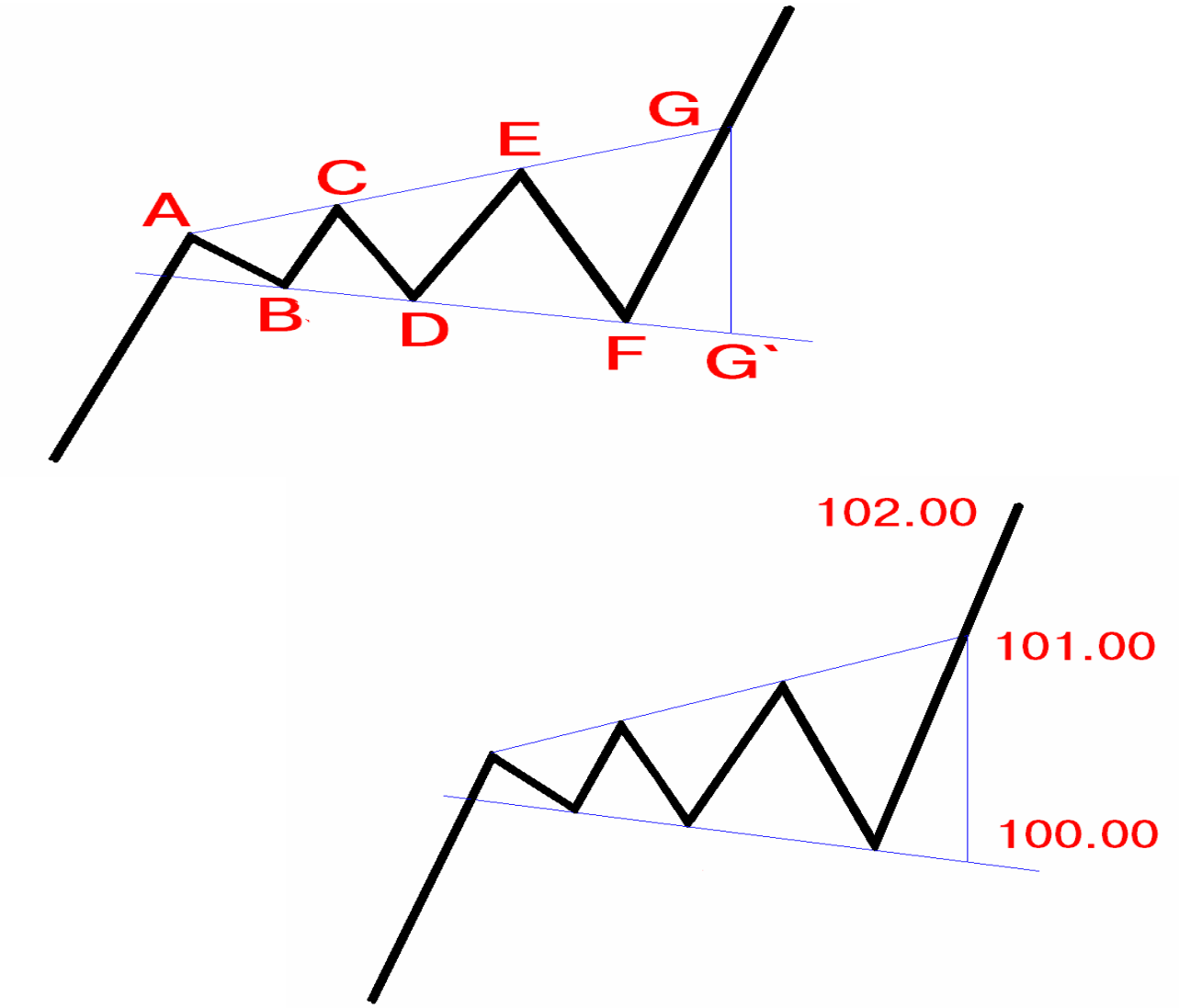

Figure 5.30. Diagram of an expanding triangle

Wedge Formation

The wedge formation is a close relative of the triangle and the pennant formations. It resembles both the shape and the development time of the triangles, but it really looks and behaves like a pennant without a pole. The wedge is markedly sloped, and the breakout occurs in the direction opposite to its slope (see Figure 5.31.), but similar to the direction of the original trend. The signal we receive from the wedge formation is direction only. There is no reliable price objective. Depending on the trend direction, there are two types of wedges: falling (see Figure 5.31.) and rising.

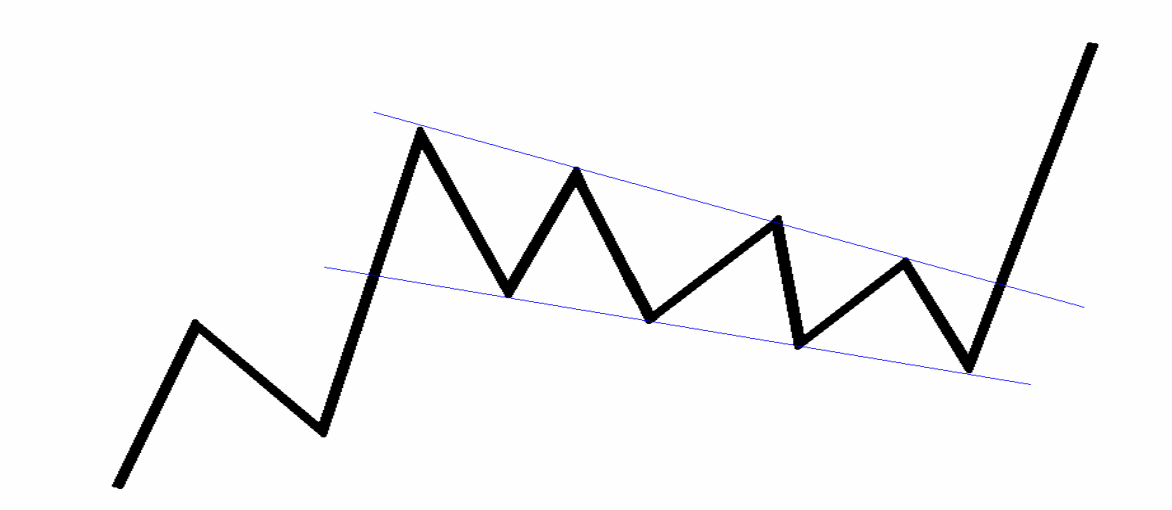

Figure 5.31. Diagram of a falling wedge

Rectangle Formation

Also known as a trading range (or congestion), the rectangle formation reflects a consolidation period. Upon breakout, it is likely to continue the original trend. Its failure will change it from a continuation to a reversal pattern. This pattern is easy to spot, as it can be considered a minor side-ways trend.

If it occurs within an uptrend and the breakout occurs on the upside, it is called a bullish rectangle. (See Figure 5.32.) The price objective is the height of the rectangle. As Figure 5.32. shows, the currency moves between well-defined, flat support and resistance levels. A valid breakout may occur on either side from this consolidation period. The price target (GH) is equal to the height of the rectangle (G'H), measured from the breakout point H. In the numerical example, the price objective is 1.6200, as the 100-pip difference between 1.6100 and 1.6000, measured from 1.6100.

If the consolidation occurs within a downtrend and the breakout continues the original trend, then it is called a bearish rectangle. (See Figure 5.33.) As shown in Figure 5.33., the currency moves between well-defined, flat support and resistance levels. A valid breakout may occur on either side of this consolidation period. The price objective (HG') is equal in size to the height of the rectangle (GH), measured from the breakout point H. In the numerical example, the price objective is 100.00, as the 100-pip difference between 102.00 and 101.00, measured from 101.00.

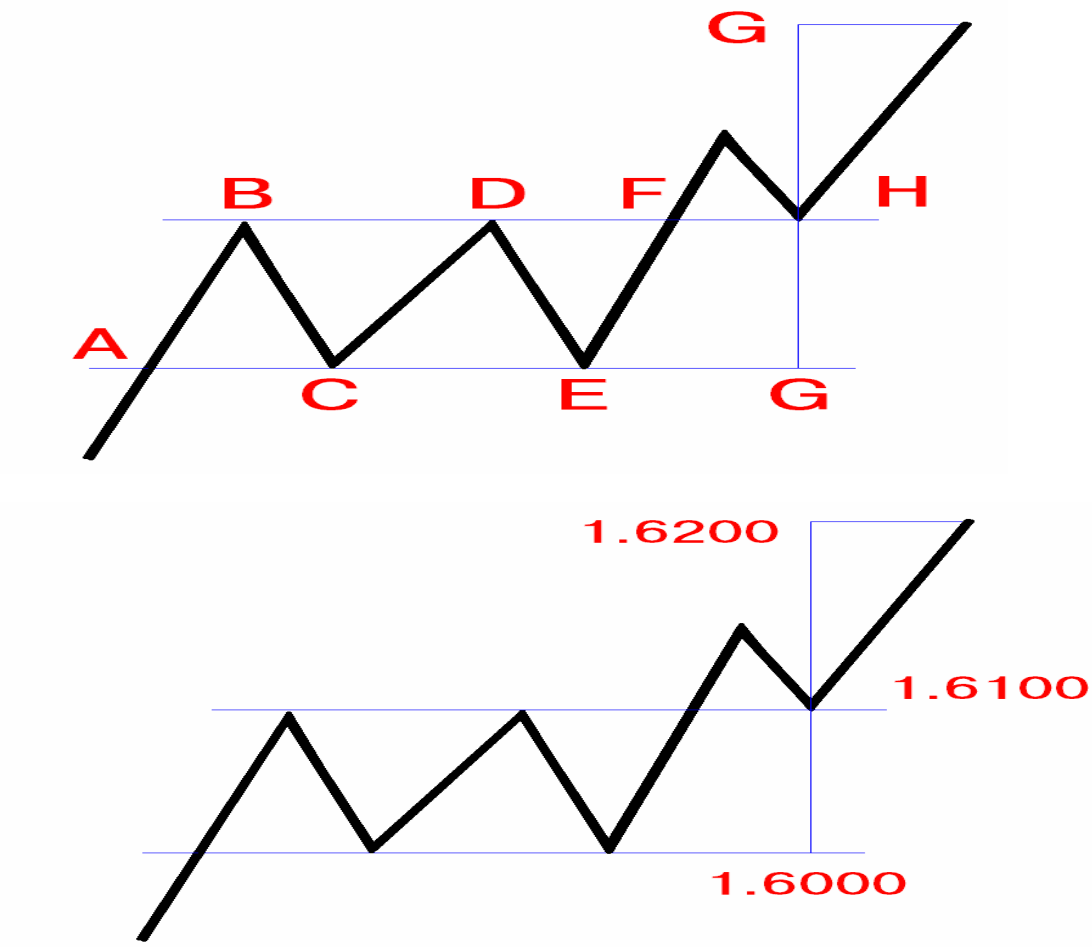

Figure 5.32. Diagram of a typical bullish rectangle

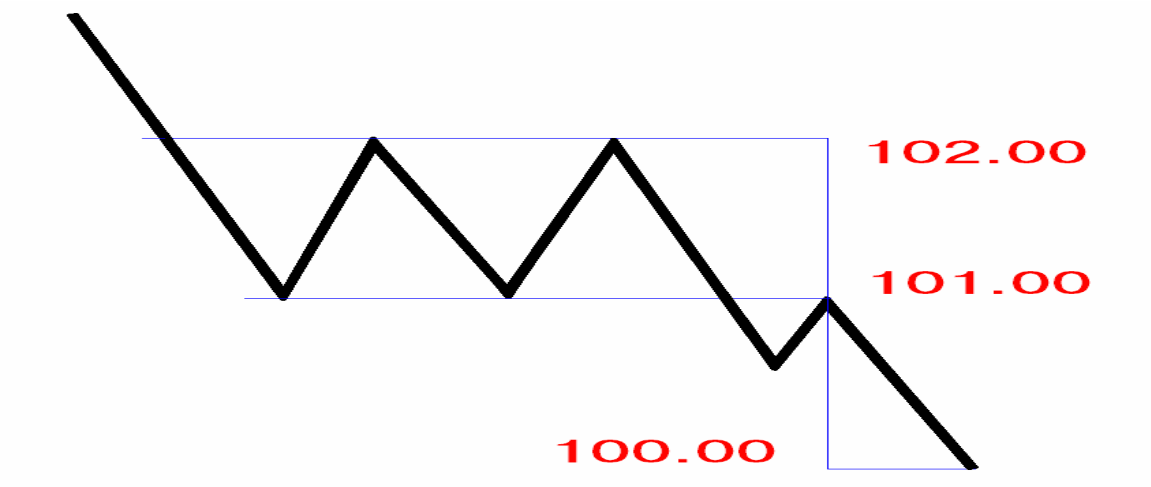

Figure 5.33. Diagram of a typical bearish rectangle

5.6. Gaps

An opening outside the previous day's or other period's range generates a price gap.

Price gaps, as plotted on bar charts, are very common in the currency futures market. Although currency futures may be traded around the clock, their markets are open for only about a third of the trading day. For instance, the largest currency futures market in the world, the Chicago IMM, is open for business 7:20 am to 2:00 pm CDT. Since the cash market continues to trade around the clock, price gaps may occur between two days' price ranges in the futures market.

There are four types of gaps: common, breakaway, runaway, and exhaustion.

Common Gaps

Common gaps have the least technical significance of all the types of gaps. They do not indicate a trend start, continuation, reversal, or even a general direction of the currency other than in the very short term. Common gaps tend to occur in relatively quiet periods or in illiquid markets. When price gaps occur in illiquid markets, such as distant currency futures expiration dates, they must be completely ignored. The entries for distant expiration dates in currency futures are made only on a closing basis, and they do not reflect any trading activity. Never trade in an illiquid market because getting out of it is very difficult and expensive. When gaps occur within regular trading ranges, the word on the street has been that, "Gaps must be filled.". Common gaps are short term. When currency futures open higher than yesterday's high, they are quickly sold, targeting the level of the previous day's high.

Breakaway Gaps

Breakaway gaps occur at the beginning of a new trend, usually at the end of long consolidation periods. They may also appear after the completion of some chart formations that tend to act as short-term consolidations. Breakaway gaps signify a brisk change in trading sentiment, and they occur on increasingly heavy trading. Traders are understandably frustrated by consolidations, which are rarely profitable. Therefore, a breakout from the slow lane is embraced with optimism by the profit-hungry traders. The price takes a secondary place to participation. As always, naysayers follow the initial breakout. Sooner rather than later, the pessimists have no choice but to join the new move, thus creating more volume.

Breakaway gaps are not likely to be filled during the breakout and for the duration of the subsequent move. In time, they may be filled during a new move on the opposite side.

In Figure 5.34., the currency futures trades sideways in a 100-pip range between 0.6550 and 0.6690 for a period of time. A price gap between 0.6690 and 0.6730 signals the breakaway from the range.

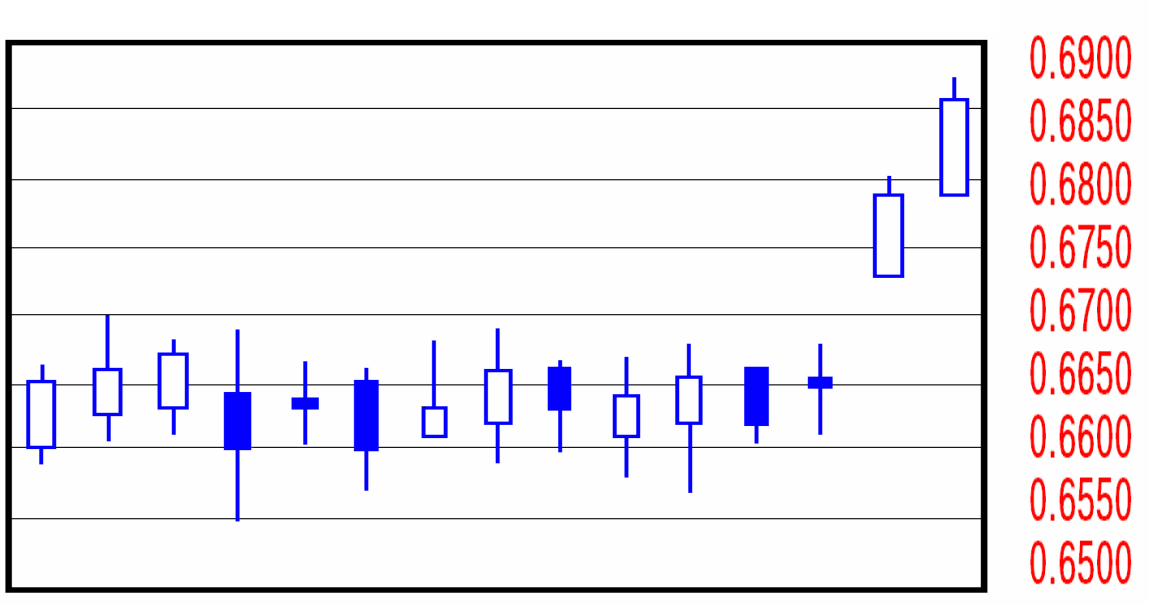

Figure 5.34. A typical breakaway gap.

Signals for Breakaway Gaps:

1. A breakaway gap provides the price direction.
2. There is no price objective.
3. Increasing demand for a currency ensures a solid move on good volume in the foreseeable future.

Runaway Gaps

From a technical point of view, runaway, or measurement, gaps are special gaps that occur within solid trends. They are known as measurement gaps because they tend to occur about midway through the life of a trend. Thus, if you measure the total range of the previous trend and extrapolate it from the measurement gap, you can identify the end of the trend and your price objective. Since the velocity of the move should be similar on both sides of the gap, you also have a time frame for the duration of the trend.

Trading Signals for Runaway Gaps

1. The runaway, or measurement, gap provides the direction of the market. As a continuation pattern, this type of gap confirms the health and the velocity of the trend.
2. Volume is good because traders like trends, and confirmed trends attract more optimism and capital.

3. This is the only type of gap that also provides a price objective and a time frame. These characteristics are also useful for developing hedging strategies.

Exhaustion Gaps

Exhaustion gaps may occur at the top or bottom of a formation when trends change direction in an atypically quick manner. There is no consolidation next to the broken trend line: The trend reversal is very sharp through a bullish move, looks a lot like a measurement gap. So traders buy the currency and stay long overnight on that assumption. The following day the market opens below the previous low, generating a second gap. If the second gap is filled or does not even occur, the trading signal remains the same. Traders do not have to get caught badly in this exhaustion gap. A sudden trend reversal is unlikely to occur in an information void. Some sort of identifiable event triggers the move—maybe a government fall or a massive and well-timed central bank intervention. Therefore, traders should at least be warned.

5.7. Mathematical Trading Methods (Indicators)

The mathematical trading methods provide a more objective view of price activity. In addition, these methods tend to provide signals prior to their occurrence on the currency charts. The tools of the mathematical methods are moving averages and oscillators.

Moving Averages

A moving average is an average of a predetermined number of prices over a number of days, divided by the number of entries. The higher the number of days in the average, the smoother the line is. A moving average makes it easier to visualize currency activity without daily statistical noise. It is a common tool in technical analysis and is used either by itself or as an oscillator.

As one can see from Figure 5.35., a moving average has a smoother line than the underlying currency. The daily closing price is commonly included in the moving averages. The average may also be based on the midrange level or on a daily average of the high, low, and closing prices.

Figure 5.35. Examples of three simple moving averages—5-day (white), 20-day (red) and 60-day (green)

It is important to observe that the moving average is a follower rather than a leader. Its signals occur after the new movement has started, not before.

There are three types of moving averages:

1. The simple moving average or arithmetic mean.
2. The linearly weighted moving average.
3. The exponentially smoothed moving average.

As described, the simple moving average or arithmetic mean is the average of a predetermined number of prices over a number of days, divided by the number of entries.

Traders have the option of using a linearly weighted moving average (See Figure 5.36.). This type of average assigns more weight to the more recent closings. This is achieved by multiplying the last day's price by one, and each closer day by an increasing consecutive number. In our previous example, the fourth day's price is multiplied by 1, the third by 2, the second by 3, and the last one by 4; then the fourth day's price is deducted. The new sum is divided by 9, which is the sum of its multipliers.

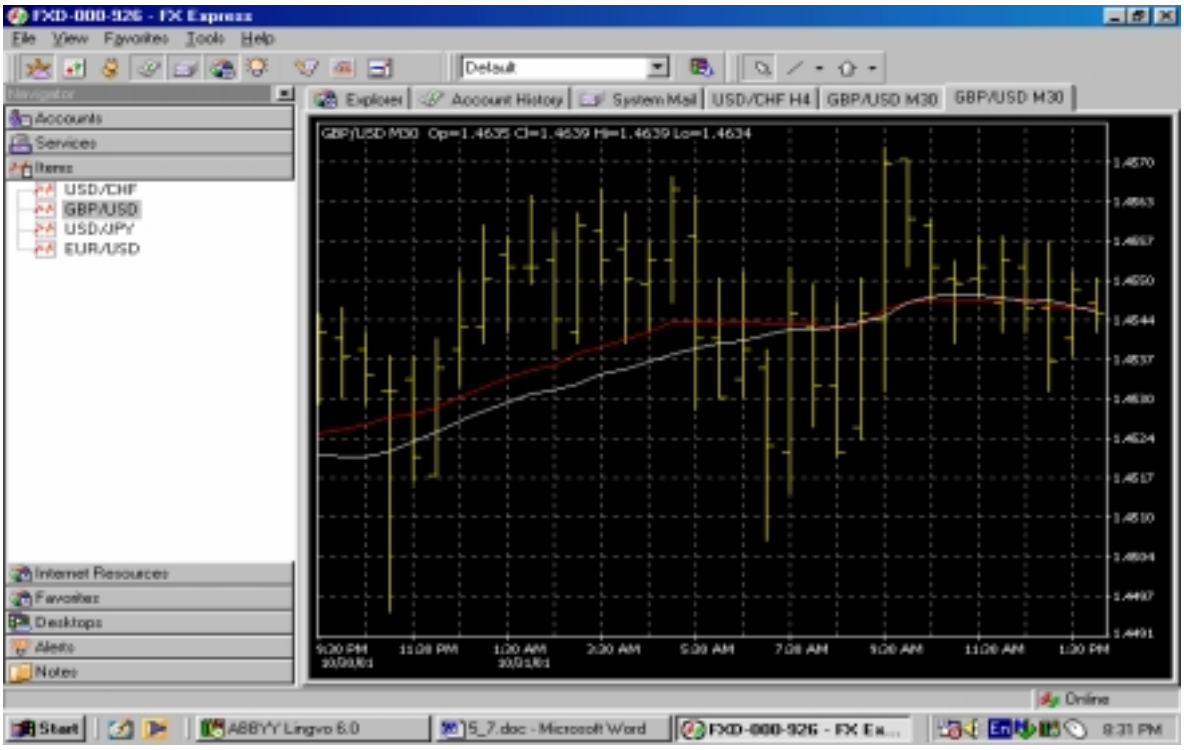

Figure 5.36. Example of a 20-day simple moving average (red) as compared to a 20-day weighted moving average (white)

The most sophisticated moving average available is the exponentially smoothed moving average. (See Figure 5.37.) In addition to assigning different weights to the previous prices, the exponentially smoothed moving average also takes into account the previous price information of the underlying currency.

Figure 5.37. Example of a 20-day simple moving average (red) as compared to a 20-day exponential moving average (white)

Trading Signals of Moving Averages

Single moving averages are frequently used as price and time filters. As a price filter, a short-term moving average has to be cleared by the currency closing price, the entire daily range, or a certain percentage (chosen at the discretion of the trader).

The envelope model (See Figure 5.38.) serves as a price filter. It consists of a short-term (perhaps 5-day) closing price based moving average to which a small percentage (2 percent is suggested for foreign currencies.) are added and substracted. The two winding parallel lines above and below the moving average will create a band bordering most price fluctuations. When the upper band is penetrated, a selling signal occurs. When the lower band is penetrated, a buying signal occurs. Because the signals generated by the envelope model are very short-term and they occur many times against the ongoing direction of the market, speed of execution is paramount. The high-low band is set up the same way, except that the moving average is based on the high and low prices. As a time filter, a short number of days may be used to avoid any false signals.

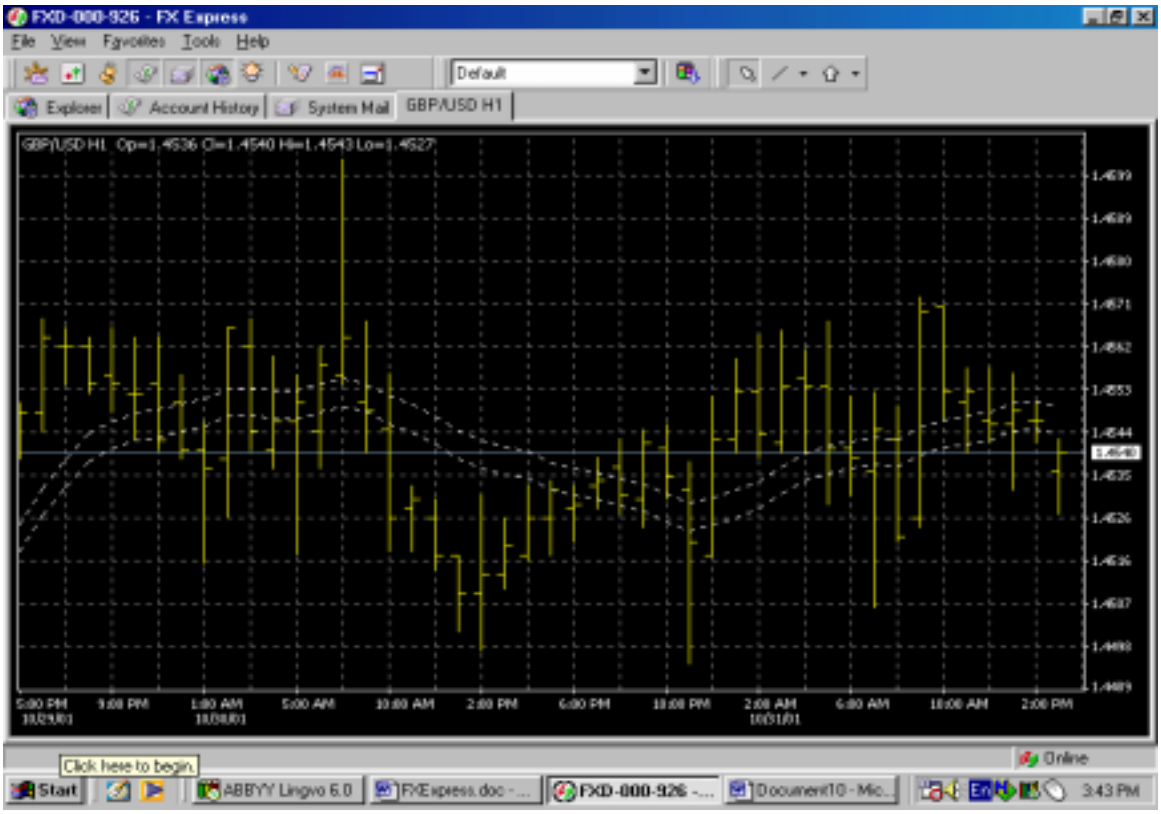

Figure 5.38. An envelope model define the edges of the band. A close above the upper band sends a buying signal and one below the lower band gives a selling signal

Usually traders choose a number of averages to use with a currency. A suggested number is three, as more signals may be available. It may be helpful to use intervals that better encompass short-term, medium-term, and long-term periods, to arrive at a more complex set of signals. Some of the more popular periods are 4, 9, and 18 days; 5, 20, and 60 days; and 7, 21, and 90 days. Unless you focus on a specific combination of moving averages (for instance, 4, 9, and 18 days), the exact number of days for each of the averages is less important, as long as they are spaced far enough apart from each other to avoid insignificant signals.

A buying signal on a two-moving average combination occurs when the shorter term of two consecutive averages intersects the longer one upward. A selling signal occurs when the reverse happens, and the longer of two consecutive averages intersects the shorter one downward. (See Figure 5.39.)

Oscillators

Oscillators are designed to provide signals regarding overbought and oversold conditions. Their signals are mostly useful at the extremes of their scales and are triggered when a divergence occurs between the price of the underlying currency and the oscillator. Crossing the zero line, when applicable, usually generates direction signals. Examples of the major types of oscillators are moving

averages convergence-divergence (MACD), momentum and relative strength index (RSI).

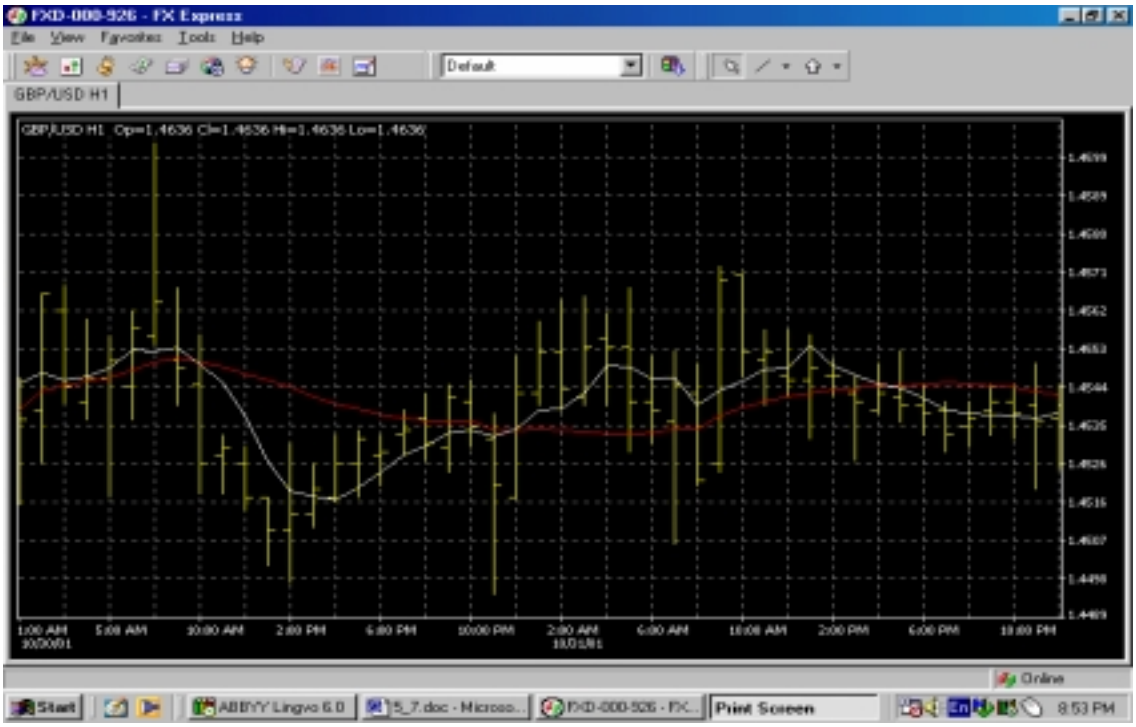

Figure 5.39. Examples of a sell signal (first and third crossovers) and a buy signals (second crossover) provided by the 5-day (red) and 20-day (white) moving averages

Stochastics

Stochastics generate trading signals before they appear in the price itself. Its concept is based on observations that, as the market gets high, the closing prices tend to approach the daily highs; whereas in a bottoming market, the closing prices tend to draw near the daily lows.

The oscillator consists of two lines called %K and %D. Visualize %K as the plotted instrument, and %D as its moving average.

The formulas for calculating the stochastics are:

%K = [(CCL -L9)I(H9 - L9)] * 100, where

CCL = current closing price
L9 - the lowest low of the past 9 days
H9 - the highest high of the past 9 days

and

%D=(H3/L3~) * 100,

where H3 = the three-day sum of (CCL - L9)
L3 = the three-day sum of (H9 - L9)

The resulting lines are plotted on a 1 to 100 scale, with overbought and oversold warning signals at 70 percent and 30 percent, respectively. The buying (bullish reversal) signals occur under 10 percent, and conversely the selling (bearish reversal) signals come into play above 90 percent after the currency turns. (See Figure 5.40.) In addition to these signals, the oscillator-currency price divergence generates significant signals.

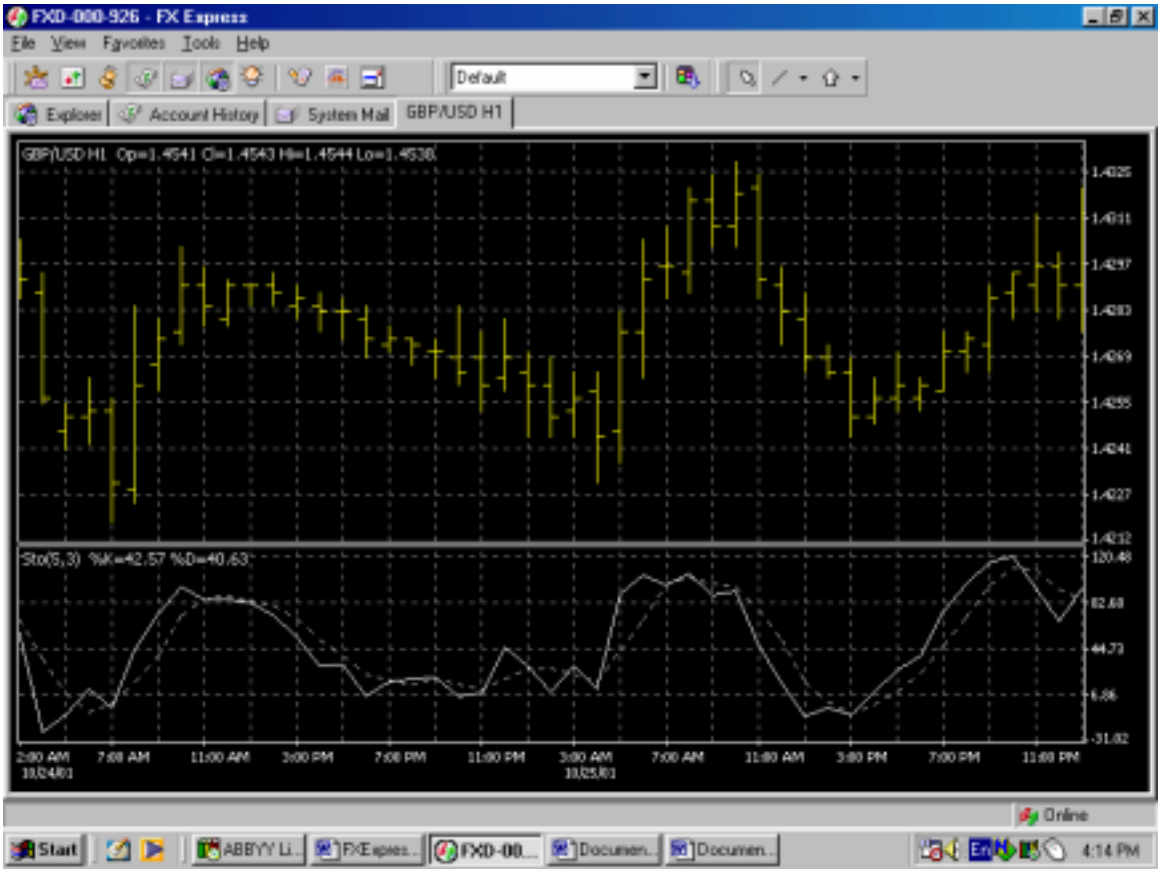

Figure 5.40. An example of the stochastic

The intersection of the %D and %K lines generates further trading signals. There are two types of intersections between the %D and %K lines:

1. The left crossing, when the %K line crosses prior to the peak of the %D line.

2. The right crossing, when the %K line occurs after the peak of the %D line.

Moving Average Convergence-Divergence (MACD)

The moving average convergence-divergence (MACD) oscillator, developed by Gerald Appel, is built on exponentially smoothed moving aver ages. The MACD consists of two exponential moving averages that are plotted against the zero line. The zero line represents the times the values of the two moving averages are identical.

In addition to the signals generated by the averages' intersection with the zero line and by divergence, additional signals occur as the shorter average line intersects the longer average line. The buying signal is displayed by an upward crossover, and the selling signal by a downward crossover. (See Figure 5.41.)

Figure 5.41. An example of MACD

Momentum

Momentum is an oscillator designed to measure the rate of price change, not the actual price level. This oscillator consists of the net difference between the current closing price and the oldest closing price from a predetermined period.

The formula for calculating the momentum (M) is:
M=CCP-OCP, where

CCP - current closing price
OCP - old closing price for the predetermined period.

The new values thus obtained will be either positive or negative numbers, and they will be plotted around the zero line. At extreme positive values, momentum suggests an overbought condition, whereas at extreme

negative values, the indication is an oversold condition. (See Figure 5.42.) The momentum is measured on an open scale around the zero line.

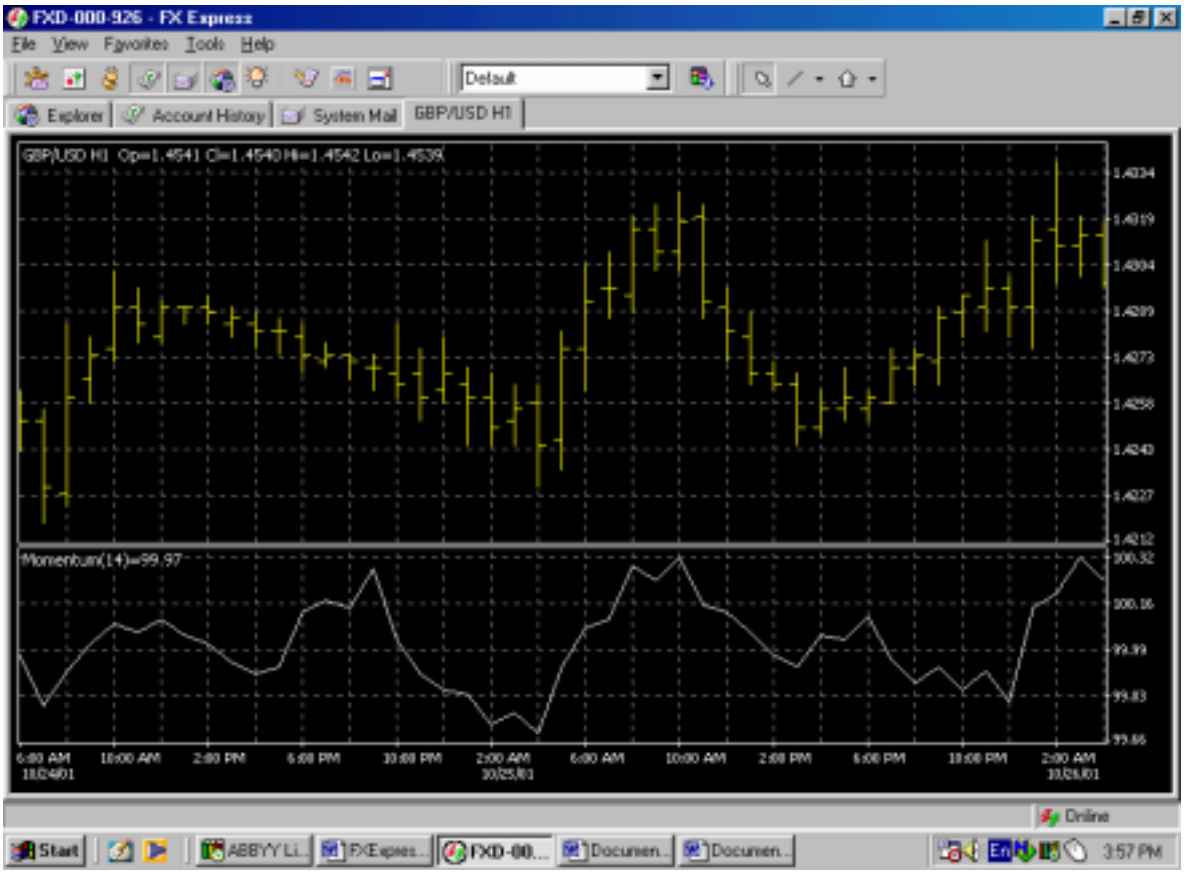

Figure 5.42. An example of the momentum oscillator

This may create potential problems when a trader must figure out exactly what an extreme overbought or oversold condition means. On the simplest level, the relativity of the situation may be addressed by analyzing the previous historical data and determining the approximate levels that delineate the extremes. The shorter the number of days included in the calculations, the more responsive the momentum will be to short-term fluctuations, and vice versa. The signals triggered by the crossing of the zero line remain in effect. However, they should be followed only when they are consistent with the ongoing trend.

The Relative Strength Index (RSI)

The relative strength index is a popular oscillator devised by Welles Wilder. The RSI measures the relative changes between the higher and lower closing prices. (See Figure 5.43.)

Figure 5.43. An example of the RSI oscillator

The formula for calculating the RSI is:
Л5/=100-[100/(1+RS)], where

RS - (average of X days up closes/average of X days down closes);

X - predetermined number of days The original number of days, as used by its author, was 14 days. Currently, a 9-day period is more popular.

The RSI is plotted on a 0 to 100 scale. The 70 and 30 values are used as warning signals, whereas values above 85 indicate an overbought condition (selling signal) and values under 15 indicate an oversold condition (buying signal.) Wilder identified the RSI's forte as its divergence versus the underlying price.

Rate of Change (ROC)

The rate of change is another version of the momentum oscillator. The difference consists in the fact that, while the momentum's formula is based on subtracting the oldest closing price from the most recent, the ROC's formula is based on dividing the oldest closing price into the most recent one. (See Figure 5.44.)

Figure 5.44. An example of the rate of change (ROC) oscillator

ROC = (CCP/OCP) * 100, where
CCP - current closing price;
OCP = old closing price for the predetermined period Larry Williams %R.

The Larry Williams %R

The Larry Williams %R is a version of the stochastics oscillator. It consists of the difference between the high price of a predetermined number of days and the current closing price, which difference in turn is divided by the total range. This oscillator is plotted on a reversed 0 to 100 scale. Therefore, the bullish reversal signals occur at under 80 percent, and the bearish signals appear at above 20 percent. The interpretations are similar to those discussed under stochastics. (See Figure 5.45.)

Commodity Channel Index (CCI)

The commodity channel index was developed by Donald Lambert. It consists of the difference between the mean price of the currency and the average of the mean price over a predetermined period of time (See Figure 5.46.). A buying signal is generated when the price exceeds the upper (+100) line, and a selling signal occurs when the price dips under the lower (-100) line. (See Figure 5.46.)

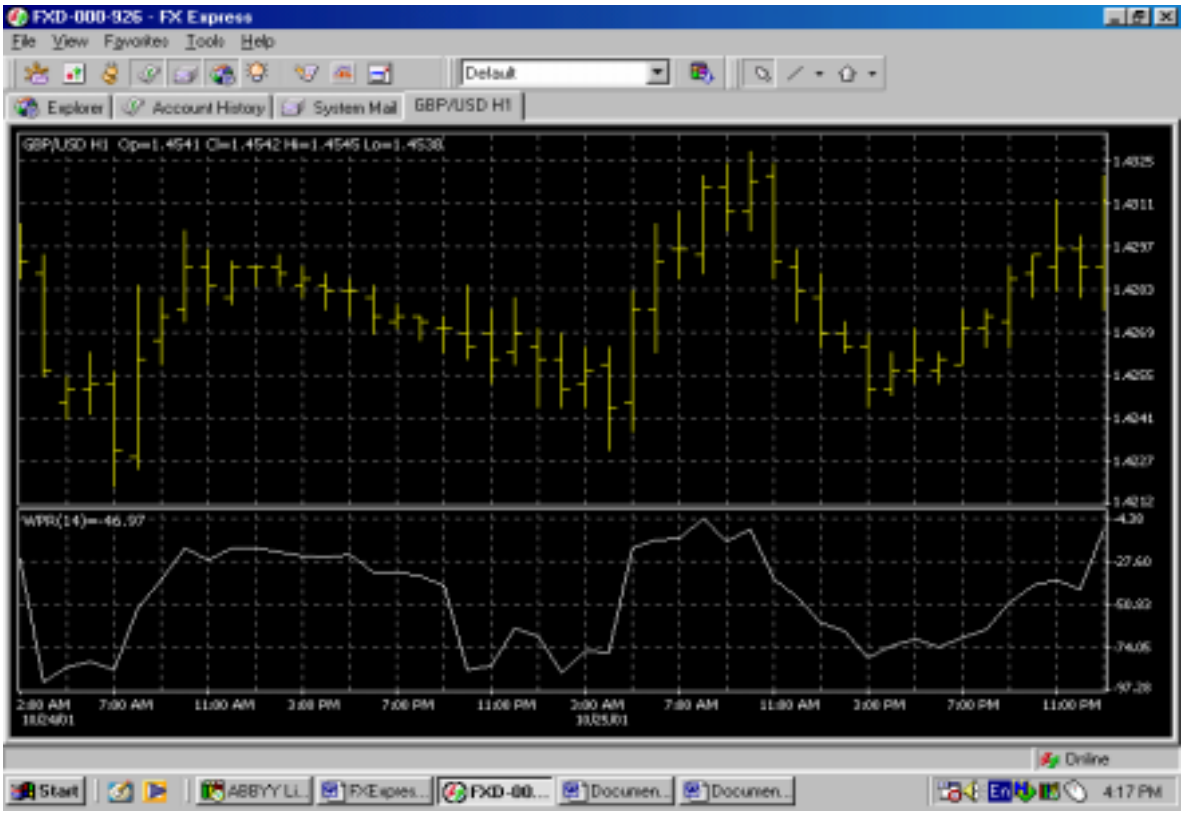

Figure 5.45. An example of the Larry Williams %R oscillator

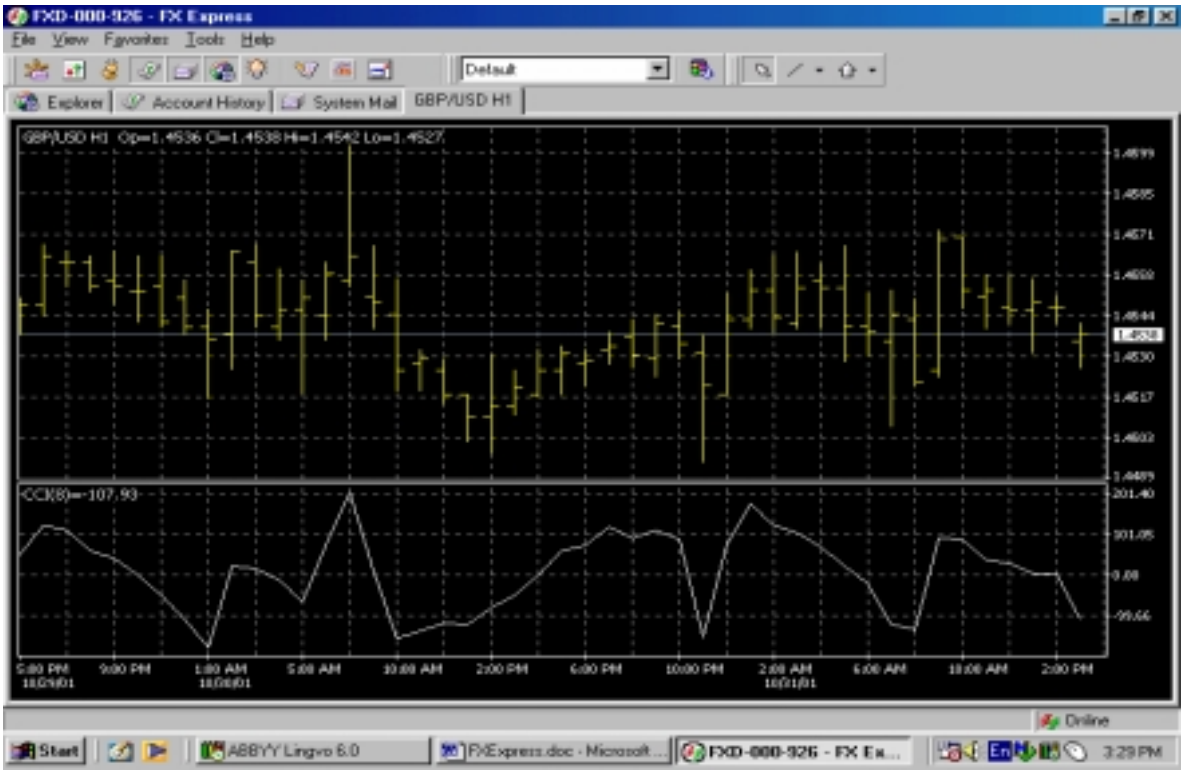

Figure 5.46. An example of the commodity channel index

Bollinger Bands

The Bollinger bands combine a moving average with the instrument's volatility. The bands were designed to gauge whether prices are high or low on a relative basis via volatility. The two are plotted two standard deviations above and below a 20-day simple moving average.

The bands look a lot like an expanding and contracting envelope model. When the band contracts drastically, the signal is that volatility is low and thus likely to expand in the near future. An additional signal is a succession of two top formations, one outside the band followed by one inside. If it occurs above the band, it is a selling signal. When it occurs below the band, it is a buying signal. (See Figure 5.47.)

The Parabolic System (SAR)

The parabolic system is a stop-loss system based on price and time. The system was devised to supplement the inadvertent gaps of the other trend-following systems. The name of the system is derived from its parabolic shape, which follows the price gyrations. It is represented by a dotted line. When the parabola is placed under the price, it suggests a long position. Conversely, when placed above the price, the parabola indicates a short position. (See Figure 5.48.) The parabolic system can be used with oscillators. SAR stands for stop and reverse. The stop moves daily in the direction of the new trend. The built-in acceleration factor pushes the SAR to catch up with the currency price. If the new trend fails, the SAR signal will be generated.

The Directional Movement Index (DMI)

The directional movement index provides a signal of trend presence in the market. The line simply rates the price directional movement on a scale of0 to 100. The higher the number, the better the trend potential of a movement, and vice versa. (See Figure 5.49.) This system can be used by itself or as a filter to the SAR system.

Traders use different combinations of technical tools in their daily trading and analysis. Some of the more popular oscillators are shown in Figure 5.50.

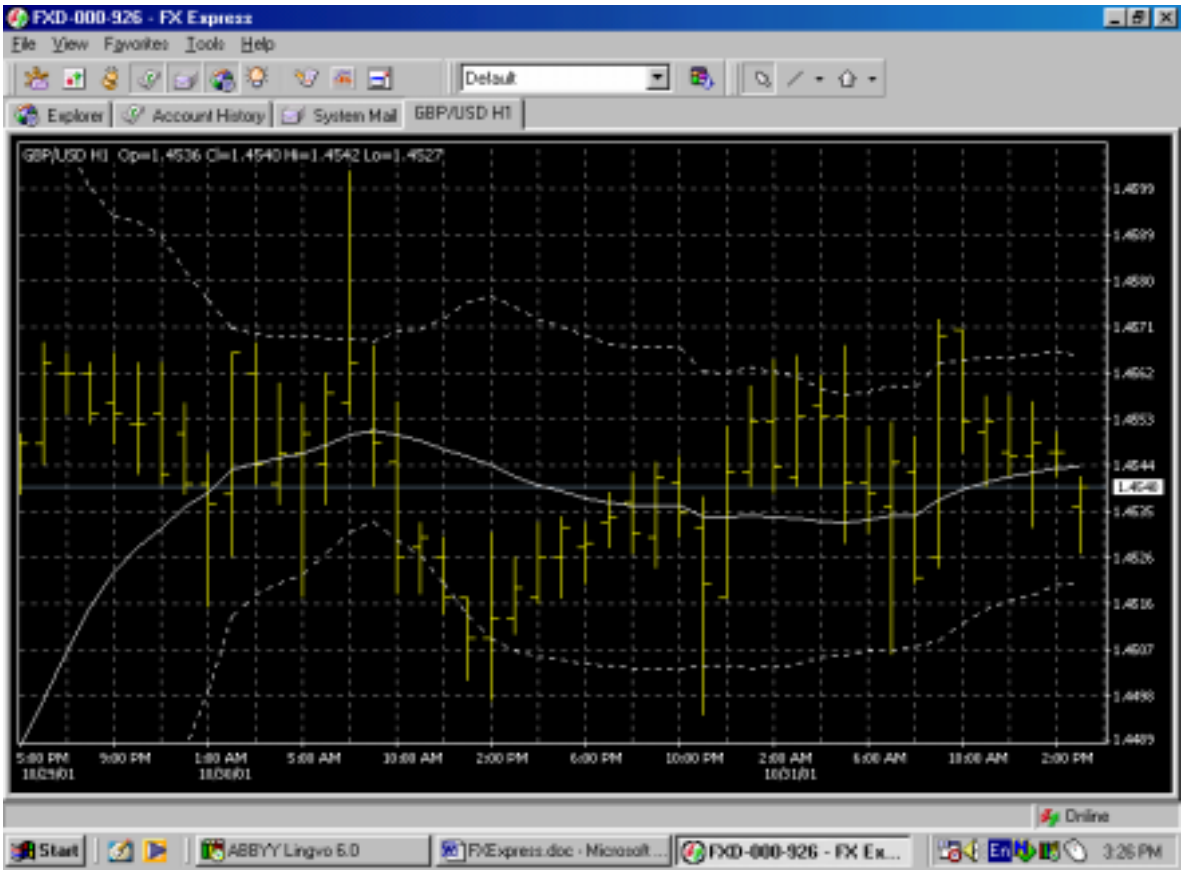

Figure 5.47. A market example of Bollinger bands

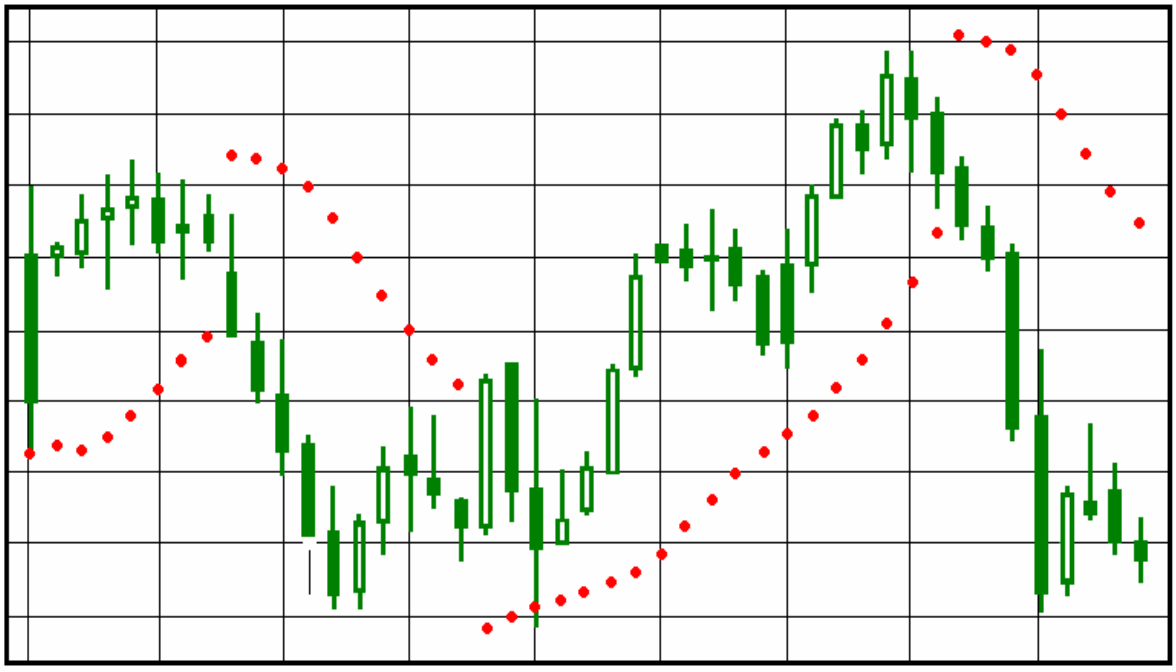

Figure 5.48. An example of the SAR parabolic study

Figure 5.49. Example of the directional movement index (DMI)

Figure 5.50. Example of oscillator combinations used for trading

CHAPTER 6
Fibonacci Analysis and Elliott Waves Theory

6.1. Fibonacci Analysis

The Fibonacci analysis gives ratios which play important role in the forecasting of market movements. This theory is named after Leonardo Fibonacci of Pisa, an Italian mathematician of the late twelfth and early thirteenth centuries He introduced an additive numerical series - Fibonacci sequence.

The Fibonacci sequence consists of the following series of numbers: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, (etc.), which exhibit several remarkable relationships, in particular the ratio of any term in the series to the next higher term. This ratio tends asymptotically to 0.618 (the Fibonacci ratio). In addition, the ratio of any term to the next lower term in the sequence tends asymptotically to 1.618, which is the inverse of 0.618. Similarly constant ratios exist between numbers two terms

Golden spirals appear in a variety of natural objects, from seashells to hurricanes to galaxies.

The financial markets exhibit Fibonacci proportions in a number of ways, particularly it constitute a tool for calculating price targets and placing stops. For example, if a correction is expected to retrace 61.8 percent of the preceding impulse wave, an investor might place a stop slightly below that level. This will ensure that if the correction is of a larger degree of trend than expected, the investor will not be exposed to excessive losses. On the other hand, if the correction ends near the target level, this outcome will increase the probability that the investor's preferred price move interpretation is accurate.

6.2. The Elliott Waves

Basics of Wave Analysis

The Elliott waves principle is a system of empirically derived rules for interpreting action in the markets. Elliott pointed out that the market unfolds according to a basic rhythm or pattern of five waves in the direction of the trend at one larger scale and three waves against that trend. In a rising market, this five wave/three-wave pattern forms one complete bull market/bear market cycle of eight waves. The five-wave upward movement as a whole is referred to as an impulse wave, and the three-wave countertrend movement is described as a corrective wave (See Figure 6.1). Within the five-wave bull move, waves 1, 3 and 5 are themselves impulse waves, subdividing into five waves of smaller scale; while waves 2 and 4 are corrective waves, subdividing into three smaller waves each. As shown in Figure 6.1, subwaves of impulse sequences are labeled with numbers, while subwaves of corrections are labeled with letters.

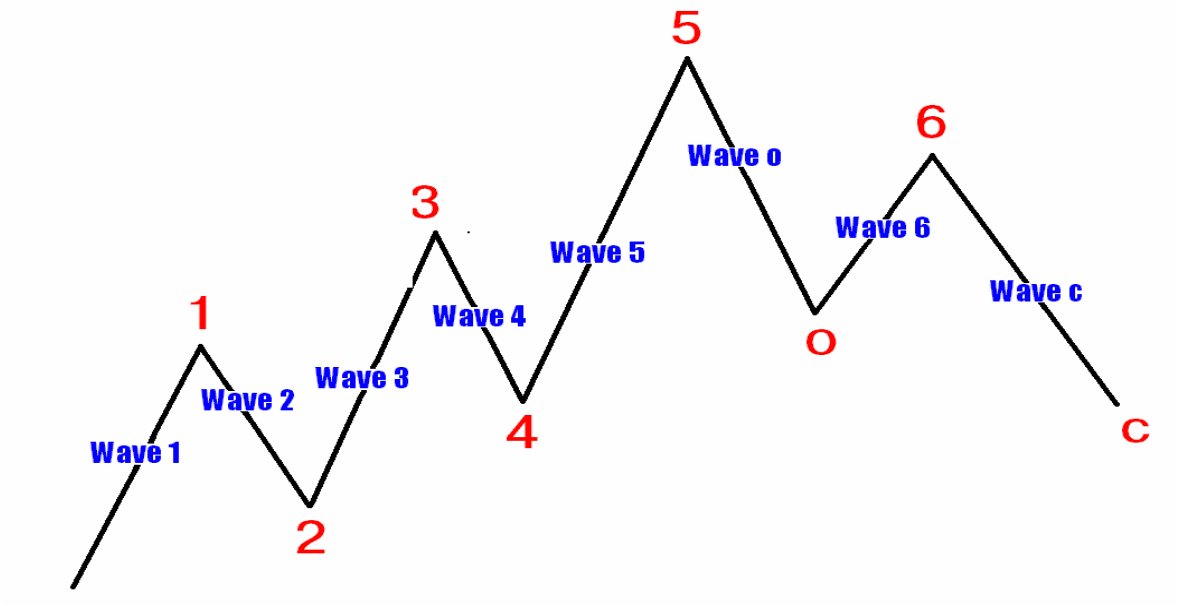

Figure 6.1. The basic Elliott Wave pattern

Following the cycle shown in the illustration, a second five-wave upside movement begins, followed by another three-wave correction, followed by one more five-wave up move. This sequence of movements constitutes a five-wave impulse pattern at one larger degree of trend, and a three-wave corrective movement at the same scale must follow. Figure 6.2 shows this larger-scale pattern in detail.

As the illustration shows, waves of any degree in any series can be subdivided and resubdivided into waves of smaller degree or expanded into waves of larger degree.

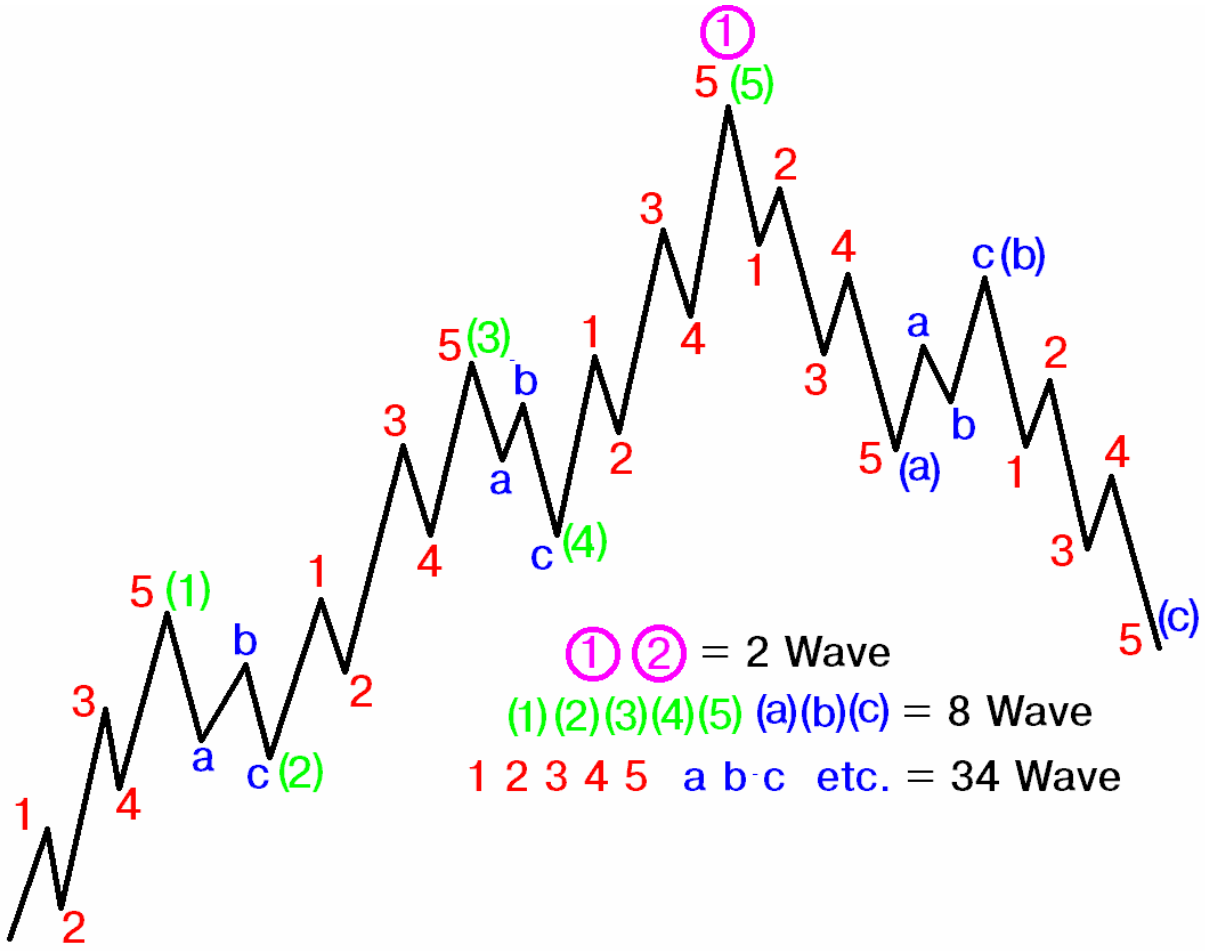

Figure 6.2. The larger pattern in detail

The following rules are applicable to the interpretation of Elliott Waves:

1. A second wave may never retrace more than 100 percent of a first wave; for example, in a bull market, the low of the second wave may not go below the beginning of the first wave.

2. The third wave is never the shortest wave in an impulse sequence; often, it is the longest.

3. A fourth wave can never enter the price range of a first wave, except in one specific type of wave pattern, the form of market movements is essentially the same, irrespective of the size or duration of the movements.

Furthermore, smaller-scale movements link up to create larger-scale movements possessing the same basic form. Conversely, large-scale movements consist of smaller-scale subdivisions with which they share a geometric similarity. Because these movements link up in increments of five waves and three waves, they generate sequences of numbers that the analyst can use (along with the rules of wave formation) to help identify the current state of pattern development, as shown in Figure 6.3.

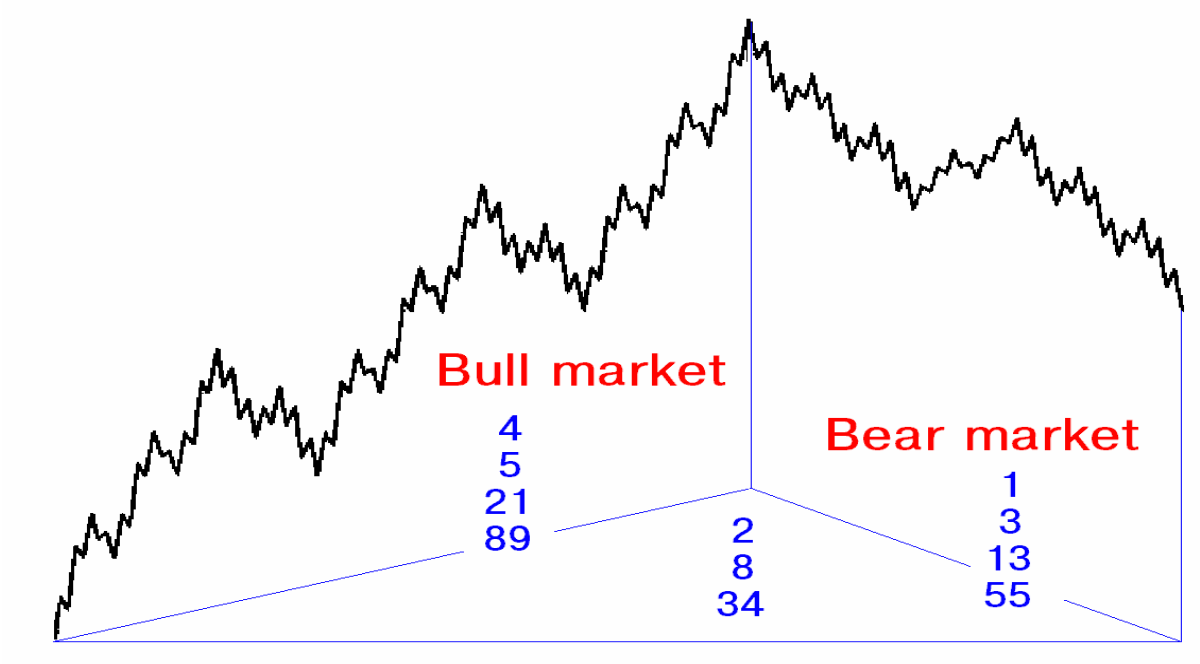

Figure 6.3. A complete market cycle

As the market swings of any degree tend to move more easily with the trend of one larger degree than against it, corrective waves often are difficult to interpret precisely until they are finished. Thus, the terminations of corrective waves are less predictable than those of impulse waves, and the wave analyst must exercise greater caution when the market is in a meandering, corrective mood than when prices are in a clearly impulsive trend. Moreover, while only three main types of impulse wave exist, there much more basic corrective wave patterns, and they can link up to form extended corrections of great complexity. A most important thing to remember about corrections is that only impulse waves can be "fives". Thus, an initial five-wave movement against the larger trend is never a complete correction, but only part of it.

Impulse Wave Variations

In any given five-wave sequence, a tendency exists for one of the three impulse subwaves (i.e., wave 1, wave 3, or wave 5) to be an extension—an elongated movement, usually with internal subdivisions. At times, these subdivisions are of nearly the same amplitude and duration as the larger degree waves of the main impulse sequence, giving a total count of nine waves of similar size rather than the normal count of five for the main sequence. In a nine-wave sequence, it is sometimes difficult to identify which wave is extended. However, this is usually irrelevant, because a count of nine and a count of five have the same technical significance. Figure 6.4. shows why this is so; examples of extensions in various wave positions make it clear that the overall significance is the same in each case. Extensions can also occur within extensions. Although extended fifth waves are not uncommon,

extensions of extensions occur most often within third waves, as shown in Figure 6.5.

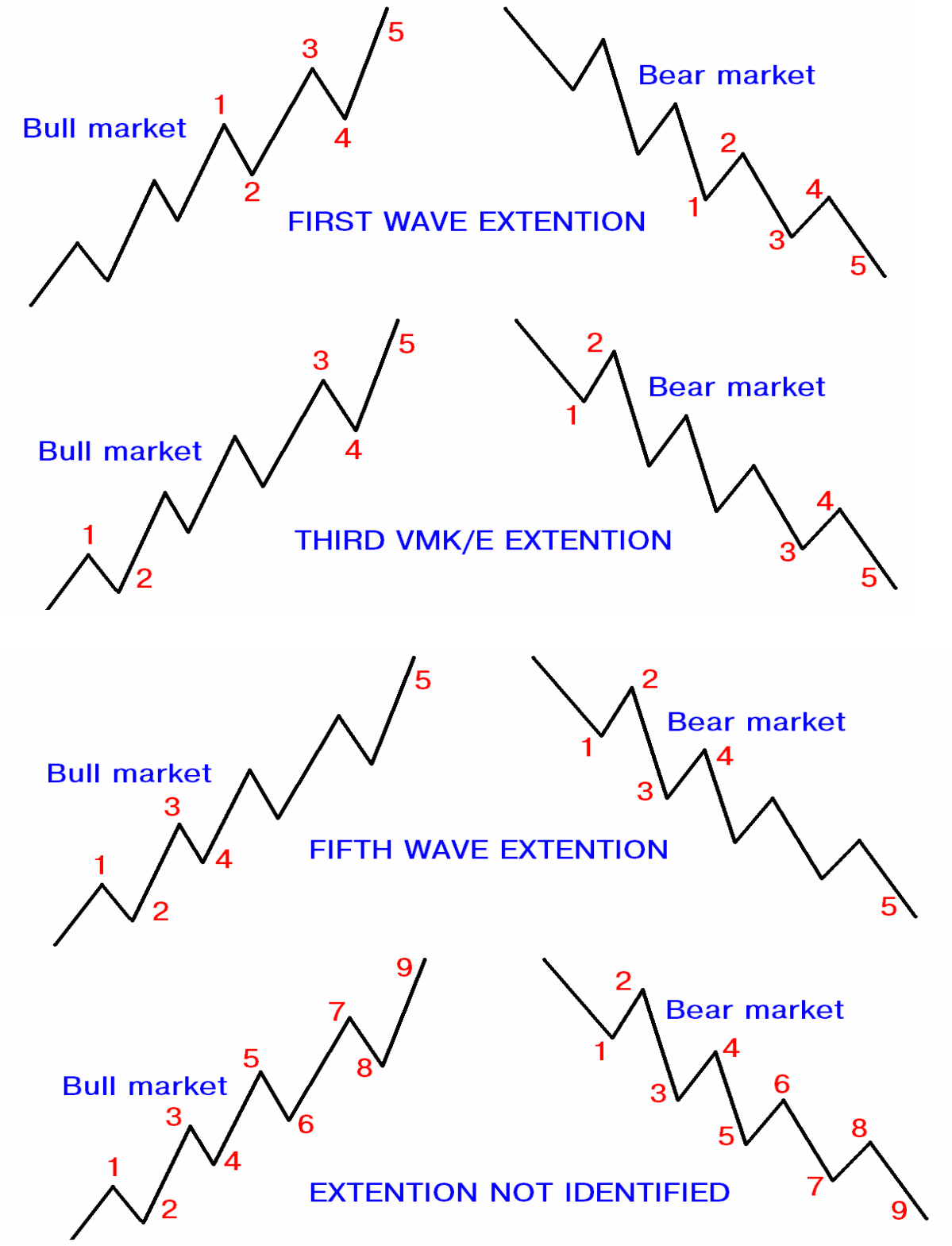

Figure 6.4. Wave extensions

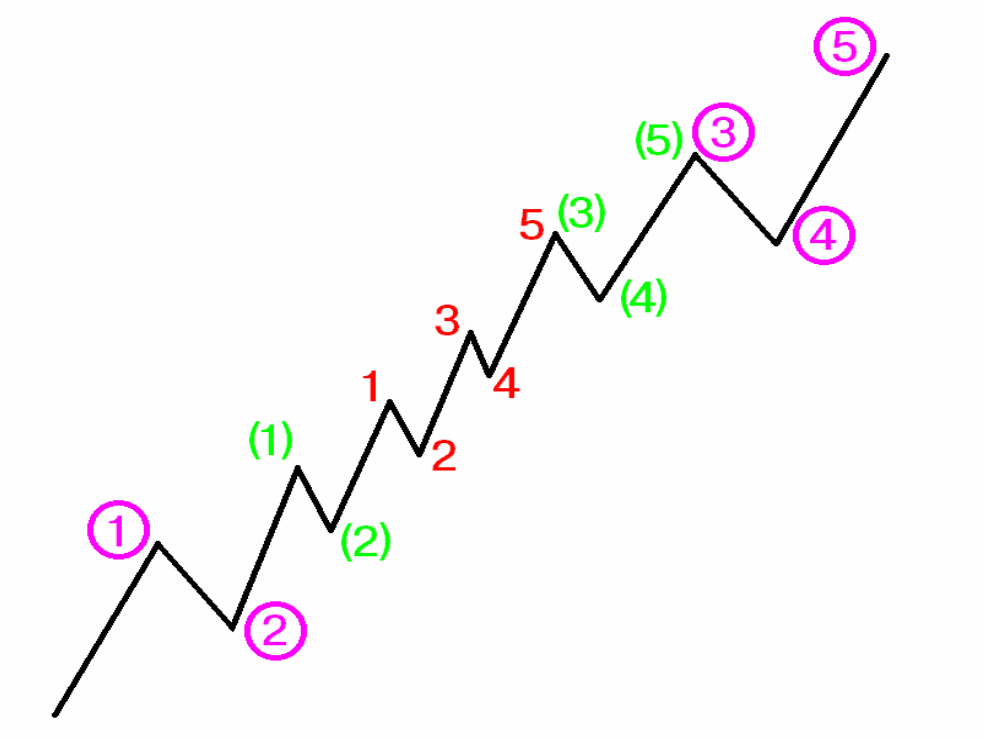

Figure 6.5. Wave extensions

Extensions can provide a useful guide to the lengths of future waves. Most impulse sequences contain extensions in only one of their three impulsive subwaves. Thus, if the first and third waves are of about the same magnitude, the fifth wave probably will be extended, especially if volume during the fifth wave is greater than during the third.

The Diagonal Triangles

There are some patterns familiar from the Technical Analysis theory, particularly two types of triangles, which should be noticed in frame of Elliotts waves consideration.

The diagonal triangle type 1 occurs only in fifth waves and in C waves, and it signals that the preceding move has, in accordance to Elliott, "gone too far, too fast." All of the patterns' sub-waves, including waves 1, 3, and 5, consist of three-wave movements, and their fourth waves often enter the price range of their first waves, as shown in Figures 6.6. and 6.7. A rising diagonal triangle type 1 is bearish, because it is usually followed by a sharp decline, at least to the level where the formation began. In contrast, a falling diagonal type 1 is bullish, because an upward thrust usually follows.

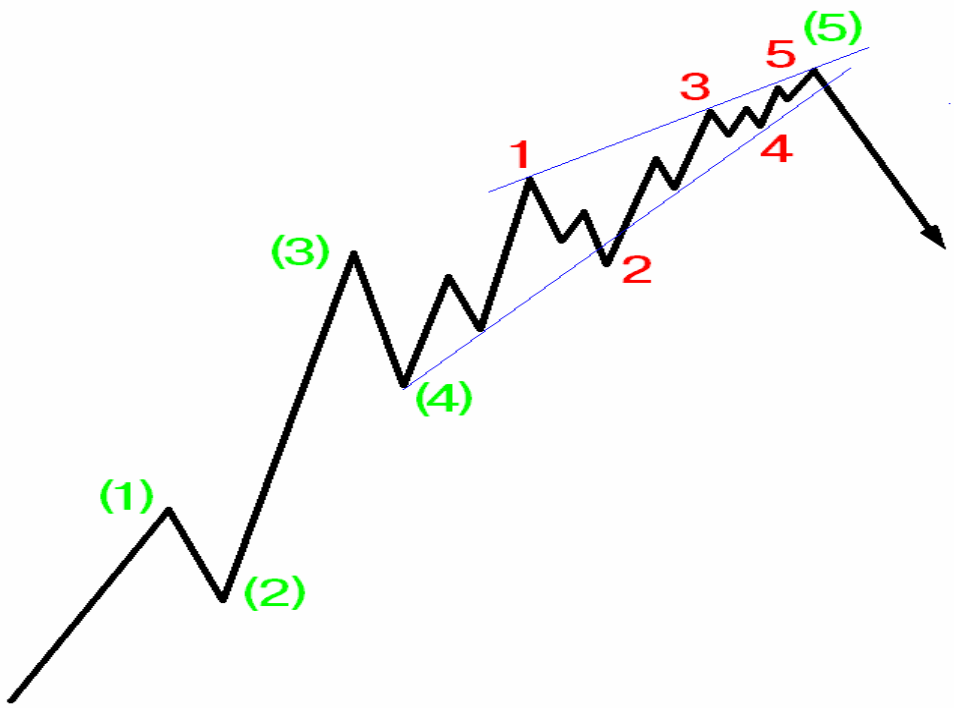

Figure 6.6. A bullish pattern

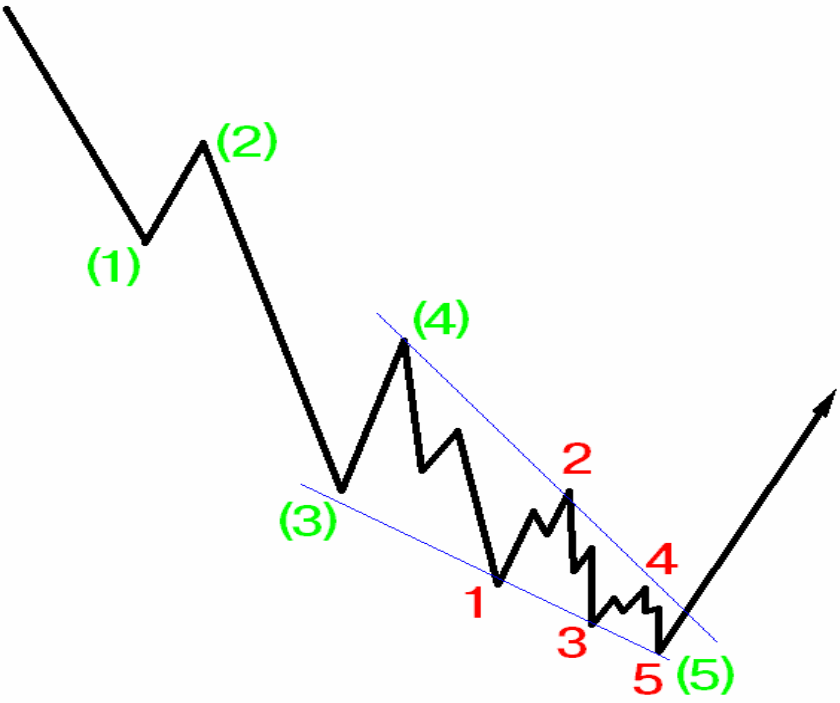

Figure 6.7. A bearish pattern

The diagonal triangle type 2 occurs even more rarely than type 1. This pattern, found in first-wave or A-wave positions in very rare cases, resembles a diagonal type 1 in that it is defined by converging trendlines and its first wave and fourth wave overlap, as shown in Figure 6.8. However, it differs significantly from type 1 in that its impulsive subwaves (waves 1, 3, and 5) are normal, five-wave impulse waves, in contrast to the three-wave subwaves of type 1. This is consistent with the message of the type 2 diagonal triangle, which signals continuation of the underlying trend, in contrast to the type 1 's message of termination of the larger trend.

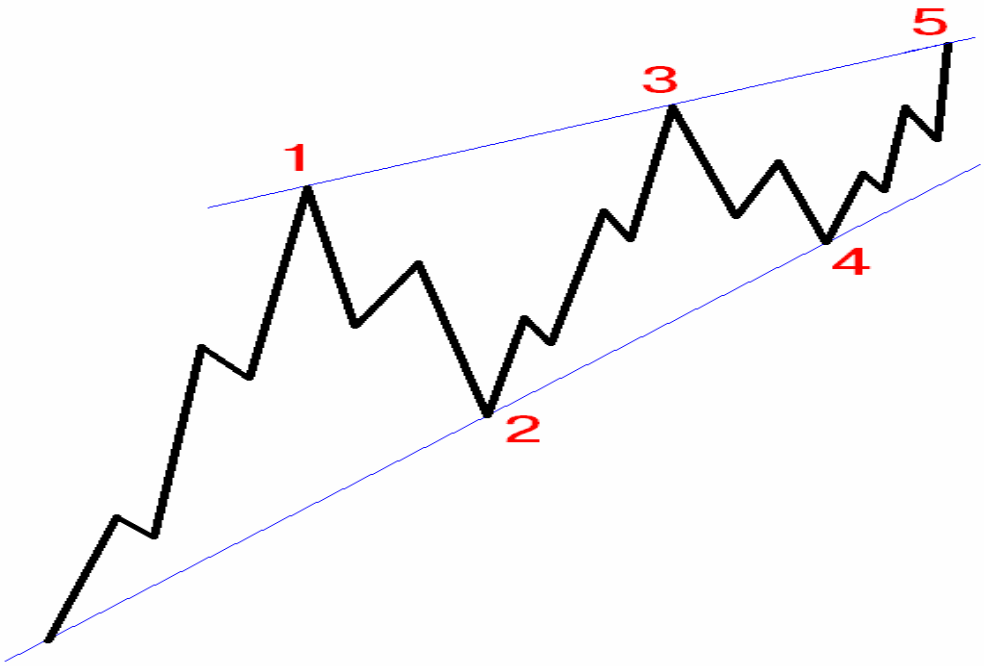

Figure 6.8.

Failures (Truncated Fifths)

Elliott described as a failure an impulse pattern in which the extreme of the fifth wave fails to exceed the extreme of the third wave. Figures 6.9 and 6.10 show examples of failures in bull and bear markets. As the illustrations show, the truncated fifth wave contains the necessary impulsive (i.e., five-wave) substructure to complete the larger movement. However, its failure to surpass the previous impulse wave's extreme signals weakness in the underlying trend, and a sharp reversal usually follows.

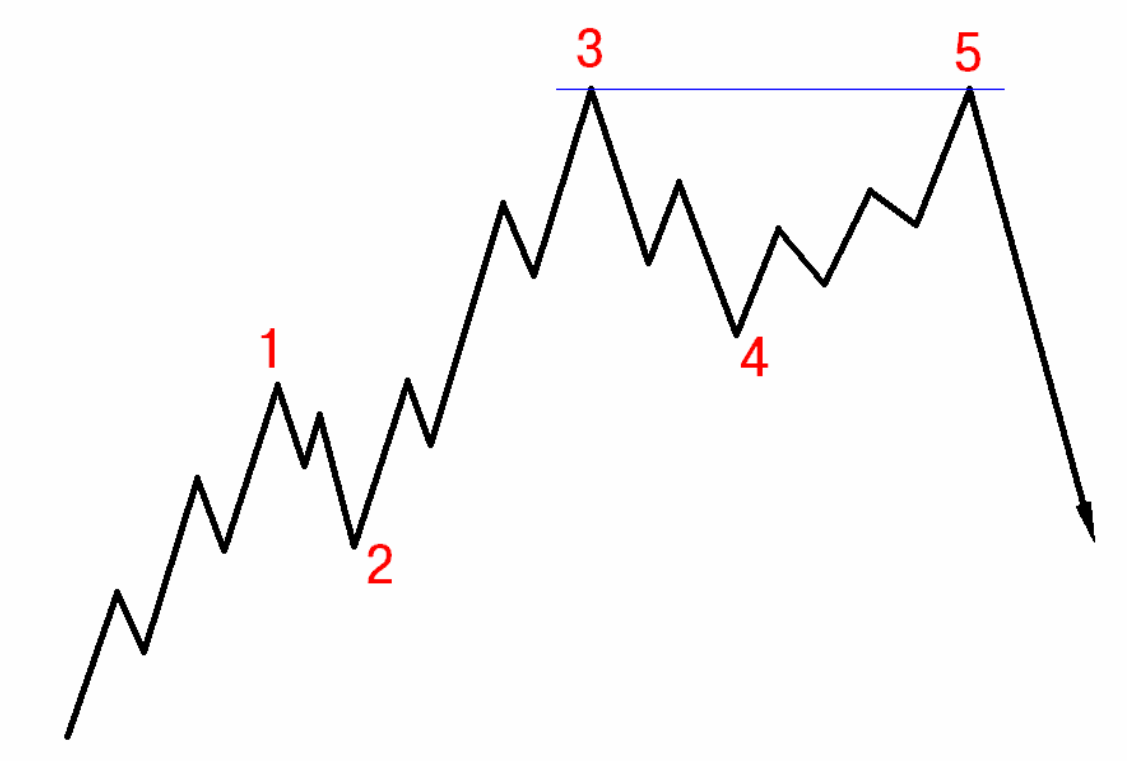

Figure 6.9. Bull market failure

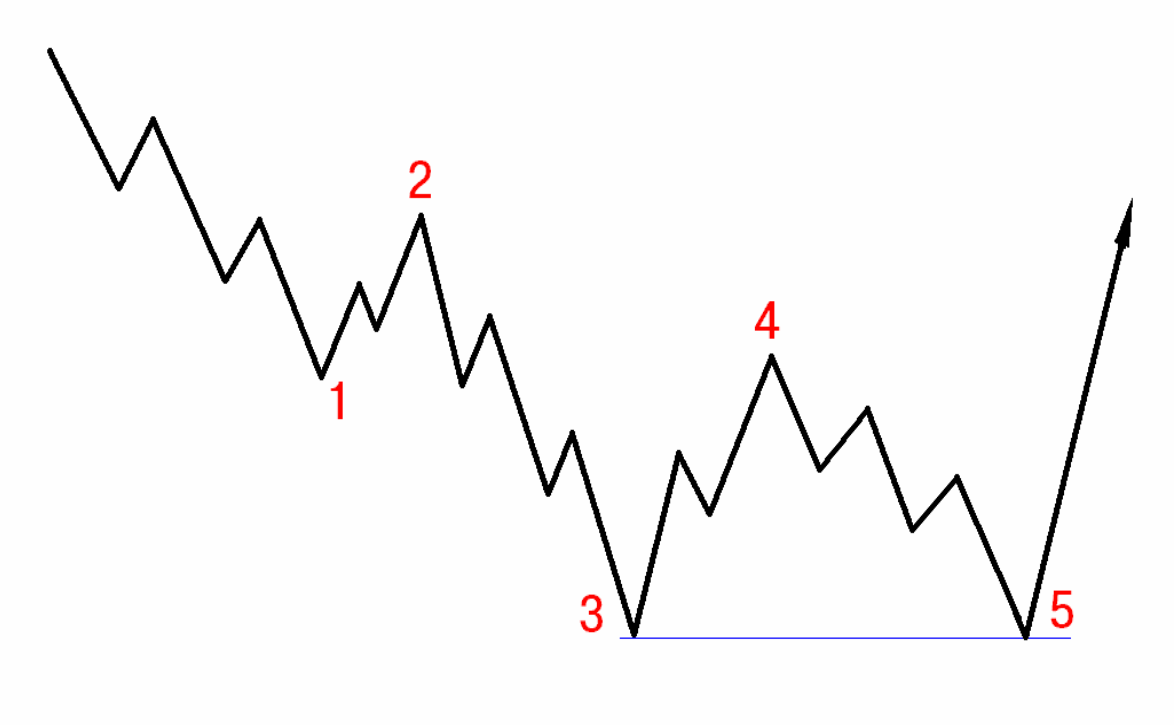

Figure 6.10. Bear market failure

CHAPTER 7
Foreign Exchange Risks

On the foreign exchange market one discerns the following kinds of the risks:

- exchange rate risk;
- interest rate risk;
- credit risk;
- country risk.

7.1. Exchange Rate Risk

Exchange rate risk is a consequence of the continuous shift in the worldwide market supply and demand balance on an outstanding foreign exchange position. A position will be a subject to all the price changes as long as it is outstanding. In order to cut losses short and ride profitable positions that losses should be kept within manageable limits. The most popular steps are the position limit and the loss limit. The limits are a function of the policy of the banks along with the skills of the traders and their specific areas of expertise. There are two types of position limits: daylight and overnight.

1. The daylight position limit establishes the maximum amount of a certain currency which a trader is allowed to carry at any single time during. The limit should reflect both the trader's level of trading skills and the amount at which a trader peaks.

2. The overnight position limit which should be smaller than daylight limits refers to any outstanding position kept overnight by traders. Really, the majority of foreign exchange traders do not hold overnight positions.

The loss limit is a measure to avoid unsustainable losses made by traders; which is enforced by the senior officers in the dealing center. The loss limits are selected on a daily and monthly basis by top management.

The position and loss limits can now be implemented more conveniently with the help of computerized systems which enable the treasurer and the chief trader to have continuous, instantaneous, and comprehensive access to accurate figures for all the positions and the profit and loss. This information may also be delivered from all the branches abroad into the headquarters terminals.

7.2. Interest Rate Risk

Interest rate risk is pertinent to currency swaps, forward out rights, futures, and options. It refers to the profit and loss generated by both the fluctuations in the forward spreads and by forward amount mismatches and maturity gaps among transactions in the foreign exchange book. An amount mismatch is the difference between the spot and the forward amounts. For an active forward desk the complete elimination of maturity gaps is virtually impossible. However, this may not be a serious problem if the amounts involved in these mismatches are small. On a daily basis, traders balance the net payments and receipts for each currency through a special type of swap, called tomorrow/next or rollover.

To minimize interest rate risk, management sets limits on the total size of mismatches. The policies differ among banks, but a common approach is to separate the mismatches, based on their maturity dates, into up to six months and past six months. All the transactions are entered in computerized systems in order to calculate the positions for all the delivery dates and the profit and loss. Continuous analysis of the interest rate environment is necessary to forecast any changes that may impact on the outstanding gaps.

7.3. Credit Risk

Credit risk is connected with the possibility that an outstanding currency position may not be repaid as agreed, due to a voluntary or involuntary action by a counter party. In these cases, trading occurs on regulated exchanges, where all trades are settled by the learing house. On such exchanges, traders of all sizes can deal without any credit concern.

The following forms of credit risk are known:

1. Replacement risk which occurs when counter parties of the failed bank find their books unbalanced to the extent of their exposure to the insolvent party. To rebalance their books, these banks enter new transactions.
2. Settlement risk which occurs because of different time zones on different continents. Such a way, currencies may be credited at different times during the day. Australian and New Zealand dollars are credited first, then Japanese yen, followed by the European currencies and ending with the U.S. dollar. Therefore, payment may be made to a party that will declare insolvency (or be declared insolvent) immediately after, but prior to executing its own payments.

The credit risk for instruments traded off regulated exchanges is to be minimized through the customers' creditworthiness. Commercial and investment banks, trading companies, and banks' customers must have credit lines with each other to be able to trade. Even after the credit lines are extended, the counter parties financial soundness should be continuously monitored. Along with the market value of their currency portfolios, end users, in assessing the credit risk, must consider also the potential portfolios exposure. The latter may be determined through probability analysis over the time to maturity of the outstanding position. For the same purposes netting is used. Netting is a process that enables institutions to settle only their net positions with one another not trade by trade but at the end of the day, in a single transaction. If signs of payment difficulty of a bank are shown, a group of large banks may provide short-term backing from a common reserve pool.

7.4. Country Risk

The failure to receive an expected payment due to government interference amounts to the insolvency of an individual bank or institution, a situation described under credit risk. Country risk refers to the government's interference in the foreign exchange markets and falls under the joint responsibility of the treasurer and the credit department. Outside the major economies, controls on foreign exchange activities are still present and actively implemented.

For the traders it is important to know or be able to anticipate any restrictive changes concerning the free flow of currencies. If this is possible, though trading in the affected currency will dry up considerably, it is still a manageable situation.

Glossary And Foreign Exchange Terms

A

Accumulation swing index (ASI) An oscillator based on the swing index (SI.) A buying signal is generated when the daily high exceeds the previous SI significant high, and a selling signal occurs when the daily low dips under the significant SI low.

American style currency option An option that may be exercised at any valid business date throughout the life of the option.

Arbitrage A risk-free type of trading in which the same instrument is bought and sold simultaneously in two different markets in order to cash in on the divergence between the two markets.

Ascending triangle A triangle continuation formation with a flat upper trendline and a bottom sloping upward trendline. (See Triangle.)

Ascending triple top A bullish point-and-figure chart formation that suggests that the currency is likely to break a resistance line the third time it reaches it. Each new top is higher than the previous one.

Atekubi A bearish two-day candlestick combination. It consists of a blank bar that closes at the daily high; the current closing price equals the previous day's low. The original day's range is a long black bar.

At par forward spread Forward price is zero; therefore, the spot price is similar to the forward price. It reflects the fact that the foreign interest rate is similar to the U.S. interest rate for that particular period.

At-the-money (ATM) option An option whose present currency price is approximately equal to the strike price.

At the price stop-loss order A stop-loss order that must be executed at the precise requested level, regardless of market conditions.

Average options Options that refer to the average rate of the underlying currency that existed during the life of the option. This rate becomes the strike in the case of the average strike options; or it becomes the underlying, determining the intrinsic value when compared to a predetermined fixed strike in the case of average rate options. Average options can be based on the spot rate (spot style) or on the forward underlying the option (forward style.) The average can be calculated arithmetically or geometrically, and the rates can be tabulated with a variety of frequencies.

Balance-of-payments All the international commercial and financial transactions of the residents of one country.

Bank of Canada (BOC) The central bank of Canada.

Bank of England (BOE) The central bank of the United Kingdom. It is a less independent central bank. The government may overwrite its decision.

Bank of France (BOF) The central bank of France.

Bank of Italy (BOI) The central bank of Italy.

Bank of Japan (BOJ) The Japanese central bank. Although its Policy Board is still fully in charge of the monetary policy, changes are still subject to the approval of the Ministry of Finance (MOF). The BOJ targets the M2 aggregate.

Bar chart A type of chart that consists of four significant points: the high and the low prices, which form the vertical bar; the opening price, which is marked with a little horizontal line to the left of the bar; and the closing price, which is marked with a little horizontal line to the right of the bar.

Barrier options (trigger options, cutoff options, cutout options, stop options, down/up-and-outs/ins, knockups) Options very similar to European style vanilla options, except that a second strike price (the trigger) is specified that, when reached in the market, automatically causes the option to be expired (knockout options) or "inspired" (knockin options).

Bearish tasuki A bearish two-day candlestick combination. It consists of a long blank bar that has a low above 50 percent of the previous day's long black body, and closes marginally above the previous day's high. The second day's rally is temporary, as it is caused only by profit-taking. The sell-off is likely to continue the next day.

Bearish tsutsumi (the engulfing pattern) A bearish two-day candlestick combination. It consists of a second-day bearish candlestick whose body "engulfs" the previous day's small bullish body.

Bilateral grid An exchange rate system that links all the central rates of the EMS currencies in terms of the ECU.

Black closing bozu A bearish candlestick formation that consists of a long black bar (upper shadow).

Black marubozu (shaven head) A bearish candlestick formation that consists of a long black bar (no shadow).

Black opening bozu A bearish candlestick formation that consists of a long black bar (lower shadow).

Black-Scholes fair value model The original option pricing model, which holds that a stock and the call option on the stock are comparable investments and thus a risk less portfolio may be created by buying the stock and selling the option on the stock, as a hedge. The movement of the price of the stock is reflected by the movement of the price of the option, but not necessarily by the same amplitude. Therefore, it is necessary to hold only the amount of the stock necessary to duplicate the movement of the price of the option.

Blank closing bozu A bullish candlestick formation that consists of a long blank bar (lower shadow).

Blank marubozu (shaven head) A bullish candlestick formation that consists of a long blank bar (no shadows).

Blank opening bozu A bullish candlestick formation that consists of a long blank bar (upper shadow).

Bollinger bands A quantitative method that combines a moving average with the instrument's volatility. The bands were designed to gauge whether the prices are high or low on a relative basis. They are plotted two standard deviations above and below a simple moving average. The bands look like an expanding and contracting envelope model. When the band contracts drastically, the signal is that volatility will expand sharply in the near future. An additional signal is a succession of two top formations, one outside the band followed by one inside. If it occurs above the band, it is a selling signal. When it occurs below the band, it is a buying signal.

Book method Point-and-figure chart's original name.

Box spread A compound option strategy that consists of four options with a common expiration date: a long call and a short put at one strike price, and a long put and a short call at a different strike price.

Breakaway gap A price gap that occurs in the beginning of a new trend, many times at the end of a long consolidation period. It may also appear after the completion of major chart formations.

Breakout of a spread triple bottom A bearish point-and-figure chart formation that suggests that the currency is likely to break a support line the third time it reaches it. The currency failed to reach the support line once.

Breakout of a spread triple top A bullish point-and-figure chart formation that suggests that the currency is likely to break a resistance line the third time it reaches it. The currency failed to reach the resistance line once.

Breakout of a triple bottom A bearish point-and-figure chart formation that suggests that the currency is likely to break a support line the third time it reaches it.

Breakout of a triple top A bullish point-and-figure chart formation that suggests that the currency is likely to break a resistance line the third time it reaches it.

Bullish tasuki A bullish two-day candlestick combination. It consists of a long black bar that has a high above 50 percent of the previous day's long blank body, and closes marginally below the previous day's low.

Bullish tsutsumi (the engulfing bar) A bullish two-day candlestick combination. It consists of a second bullish candlestick whose body "engulfs" the previous day's small bearish body.

Bundesbank The German central bank. In addition to its domestic obligations, the Bundesbank has had international obligations since 1979 as the front player of the European Monetary System. The Bundesbank is a very independent central bank.

Business firms (establishment) survey Survey of the payroll, workweek, hourly earnings, and total hours of employment in the non farm sector.

Business Inventories An economic indicator that consists of the items produced and held for future sale.

Butterfly spread A compound option strategy that consists of a combination of a bull spread and a bear spread, using either calls or puts.

C

Calendar combination A compound option strategy that consists of the simultaneous call calendar spread and put calendar spread, in which the strike price of the calls is higher than the strike price of the puts.

Calendar spread A combination option of two similar types of options, either calls or puts, with the same strike price but different expiration dates. The dissimilarity between the expiration dates allows this type of spread to capitalize on both the impact of the time decay and the interest rate differentials.

Calendar straddle A compound option strategy that consists of simultaneous buying of a longer-term straddle and a near-term straddle with a common strike price.

Call ratio backspread A compound option strategy that consists of short calls with a lower strike price and more long calls with a higher strike price. The profit is twofold. The maximum upside profit potential is unlimited. The downside profit potential consists of the total premium received. The maximum loss potential occurs when the currency price reaches the higher strike price at expiration.

Candlestick chart A type of chart that consists of four major prices: high, low, open, and close. The body (jittai) of the candlestick bar is formed by the opening and closing prices. To indicate that the opening was lower than the closing, the body of the bar is left blank. If the currency closes below its opening, the body is filled. The rest of the range is marked by two "shadows": the upper shadow (uwakage) and the lower shadow (shitakage).

Capacity utilization An economic indicator that consists of total industrial output divided by total production capability. The term refers to the maximum level of output a plant can generate under normal business conditions.

Cardinal square A Gann technique for forecasting future significant chart points by counting from the all-time low price of the currency. It consists of a square divided by a cross into four quadrants. The all-time low price is housed in the center of the cross. All of the following higher prices are entered in clockwise order. The numbers positioned in the cardinal cross are the most significant chart points.

Channel line A parallel line that can be traced against the trendline, connecting the significant peaks in an uptrend, and the significant troughs in a downtrend.

Chaos theory A theory that holds that statistically noisy behavior may occur randomly, even in simple environments. This seemingly random behavior may be predicted with decreasing accuracy if the source is known.

CHIPS (Clearing House Interbank Payments System) A computerized system used for foreign exchange dollar settlements.

Christmas tree spread A compound option strategy that consists of several short options at two or more strike prices.

Classes of options The types of options: calls and puts.

Combination spread (synthetic future) A compound option strategy that consists of a long call and a short put, or a long put and a short call, with a common expiration date.

Commodity Channel Index (CCI) An oscillator that consists of the difference between the mean price of the currency and the average of the mean price over a predetermined period of time. A buying signal is generated when the price exceeds the upper (+100) line, and a selling signal occurs when the price dips under the lower (-100) line.

Commodity Futures Trading Commission (CFTC) An independent agency created by Congress in 1974 with a mandate to regulate commodity futures and options markets in the United States. The CFTC's responsibilities are to ensure the economic utility of futures markets, via competitiveness and efficiency; ensure the integrity of these markets; and protect the participants against manipulation, fraud, and abusive practices. The Commission, based in Washington, D.C., regulates the activities of 285 commodity brokerage firms; 48,211 salespeople; 8017 floor brokers; 1325 commodity pool operators (CPOs); 2733 commodity trading advisers (CTAs); and 1486 introducing brokers (IBs).

Commodity Research Bureau's (CRB) Futures Index Index formed from the equally weighted futures prices of 21 commodities. The preponderance of food commodities makes the CRB Index less reliable in terms of general inflation.

Common gap A price gap that occurs in relatively quiet periods or in illiquid markets. It has limited technical significance.

Condor spread A compound option strategy that consists of either four same-type options with a common expiration date—two long options with consecutive strike prices, one short option with an immediately lower strike price, and one short option with an immediately higher strike price; or four same-type options with a common expiration date—two short options with consecutive strike prices, one long option with an immediately lower strike price, and one long option with an immediately higher strike price.

Consumer Price Index (CPI) An economic indicator that gauges the average change in retail prices for a fixed market basket of goods and services.

Consumer sentiment A survey of households designed to gauge the individual propensity for spending. There are two studies conducted in this area, one survey by the University of Michigan, and the other by the National Family Opinion for the Conference Board. The confidence index measured by the Conference Board is sensitive to the job market, whereas the index generated by the University of Michigan is not.

Continuation patterns Technical signals that reinforce the current trends.

Cost of carry The interest rate parity, whereby the forward price is determined by the cost of borrowing money in order to hold the position.

Council of Ministers The legislative body of the European Economic Community in charge of making the major policy decisions. It is

composed of ministers from all the 12 member nations. The presidency rotates every six months by all the 12 members, in alphabetical order. The meetings take place in Brussels or in the capital of the nation holding the presidency.

Country (sovereign) risk A trading risk emerging from a government's interference in the foreign exchange markets.

Covered interest rate arbitrage An arbitrage approach that consists of borrowing currency A, exchanging it for currency B, investing currency B for the duration of the loan, and, after taking off the forward cover on maturity, showing a profit on the entire set of deals.

Covered long A compound option strategy that consists of selling a call against a long currency position. A covered long is synonymous with a short put.

Covered short A compound option strategy that consists of shorting a put against a short currency position. A covered short is synonymous with a short call.

Cox, Ross, and Rubinstein pricing model An option pricing model that takes into consideration the early exercise provision of the American style options. As it assumes that early exercise will occur only if the advantage of holding the currency exceeds the time value of the option, their binomial method evaluated the call premium by estimating the probability of early exercise for each successive day. The theoretical premium is compared to the holding cost of the cash hedge position, until the option's time value is worth less than the forward points of the currency hedge and the option should be exercised.

Credit risk The possibility that an outstanding currency position may not be repaid as agreed, due to a voluntary or involuntary action by a counterparty.

Cross rates Currencies traded against currencies other than the U.S. dollar. A cross rate is a non-dollar currency.

Currency call A contract between the buyer and seller that holds that the buyer has the right, but not the obligation, to buy a specific quantity of a currency at a predetermined price and within a predetermined period of time, regardless of the market price of the currency. The writer assumes the obligation of delivering the specific quantity of a currency at a predetermined price and within a predetermined period of time, regardless of the market price of the currency, if the buyer wants to exercise the call option.

Currency fixings An open auction executed in Europe on a daily basis in which all players, regardless of size, are welcome to participate with any amount.

Currency futures A specific type of forward outright deal with standardized expiration date and size of the amount.

Currency option A contract between a buyer and a seller, also known as writer, that gives the buyer the right, but not the obligation, to

trade a specific quantity of a currency at a predetermined price and within a predetermined period of time, regardless of the market price of the currency; and gives the seller the obligation to deliver or buy the currency under the predetermined terms, if and when the buyer wants to exercise the option.

Currency put A contract between the buyer and the seller that holds that the buyer has the right, but not the obligation, to sell a specific quantity of a currency at a predetermined price and within a predetermined period of time, regardless of the market price of the currency. The writer assumes the obligation to buy the specific quantity of a currency at a predetermined price and within a predetermined period of time, regardless of the market price of the currency, if the buyer wants to exercise the call option.

Current account balance The broadest current dollar measure of U.S. trade, which incorporates services and unilateral transfers into the merchandise trade data.

Daylight position limit The maximum amount of a certain currency a trader is allowed to carry at any single time, between the regular trading hours.

Dead cross An intersection of two consecutive moving averages that move in opposite directions and should technically be disregarded.

Dealing systems On-line computers that link the contributing banks around the world on a one-on-one basis.

Delta (A) (1) The change of the currency option price relative to a change in the currency price; (2) the hedge ratio between the option contracts and the currency futures contracts necessary to establish a neutral hedge; (3) the theoretical or equivalent share position. In the third case, delta is the number of currency futures contracts a call buyer is long or a put buyer is short. Delta ranges between 0 and 1.

Descending triangle A triangle continuation formation with a flat lower trendline and a downward-sloping upper trendline. (See Triangle.)

Descending triple bottom Bearish point-and-figure chart formation that suggests that the currency is likely to break a support line the third time it reaches it. Each new bottom is lower than the previous one.

Diagonal spread A compound option strategy that consists of several same-type options, in which the long side and the short side have different strike prices and different expirations.

Diamond A minor reversal pattern that resembles a diamond shape.

Direct dealing An aggressive approach in which banks contact each other outside the brokers' market.

Directional Movement Index A signal of trend presence in the market. The line simply rates the price directional movement on a scale of 0 to 100. The higher the number, the better the trend potential of a movement, and vice versa.

Discount forward spread A forward price that is deducted from a spot price to calculate a forward price. It reflects the fact that the foreign interest rate is lower than the U.S. interest rate for that particular period.

Discount rate The interest rate at which eligible depository institutions may borrow funds directly from the Federal Reserve Banks. The rate is controlled by the Federal Reserve and is not subject to trading.

Discretion for range to trader stop-loss order A stop-loss order that gives the trader a number of discretionary pips within which the order has to be filled.

Double bottoms A bullish reversal pattern that consists of two bottoms of approximately equal heights. A parallel (resistance) line is drawn against a line that connects the two bottoms. The break of the resistance line generates a move equal in size to the price difference between the average height of the bottoms and the resistance line.

Double tops A bearish reversal pattern that consists of two tops of approximately equal heights. A parallel (support) line is drawn against a resistance line that connects the two tops. The break of the support line generates a move equal in size to the price difference between the average height of the tops and the support line.

Downside tasuki gap A bearish two-day candlestick combination. It consists of a second-day blank bar that closes an overnight gap opened on the previous day by a black bar.

Downward breakout of a bearish support line A bearish point-and-figure chart formation that confirms the currency's breakout of a support line the third time it reaches it.

Downward breakout of a bullish support line A bearish point-and-figure chart formation that confirms the currency's breakout of a support line the third time it reaches it. The support line is sloped upward.

Downward breakout from a consolidation formation A bearish point-and-figure chart formation that resembles the inverse flag formation. A valid downside breakout from the consolidation formation has a price target equal in size to the length of the previous downtrend.

Durable Goods Orders An economic indicator that measures the changes in sales of products with a life span in excess of three years.

E

Economic exposure Reflects the impact of foreign exchange changes on the future competitive position of a company.

Elliott Wave Principle A system of empirically derived rules for interpreting action in the markets. It refers to a five-wave/three-wave pattern that forms one complete bull market/bear market cycle of eight waves.

Envelope model A band created by two winding parallel lines above and below a short-term moving average that borders most price fluctuations. When the upper band is penetrated, a selling signal occurs; when the lower band is penetrated, a buying signal is generated. Because the signals generated by the envelope model are very short-term and occur many times against the ongoing direction of the market, speed of execution is paramount.

Eurocurrency Currency deposit outside the country of origin.

Eurodollars U.S. dollar deposits placed in commercial banks outside the United States.

European Coal and Steel Community European entity established in 1951 by the Treaty of Paris, with the purpose of promoting inter-European trade in general, and eliminating restrictions on the trade of coal and raw steel in particular. West Germany, France, Italy, the Netherlands, Belgium, Luxembourg, and Great Britain formed this community.

European Commission The executive body of the European Economic Community in charge of making and observing the enforcement of policy. It consists of 23 departments, such as foreign affairs, competition policy and agriculture. Each country selects its own representatives for four-year terms, but the commissioners may only act for the benefit of the community. The commission is based in Brussels and consists of 17 members.

European Court of Justice The European Economic Community body in charge of settling disputes between the EC and member nations. It consists of 13 members and is based in Luxembourg.

European currency unit A basket of the member currencies. As a composite unit, the ECU consists of all the European Community currencies, which are individually weighted. It was created by the European Monetary System with the eventual goal of replacing the individual European member currencies.

European Economic Community A community established by the Treaty of Rome in 1951, with the goal of eliminating customs duties and any barriers against the transit of capital, services, and people among the member nations. The signatories were West Germany, France, Italy, the Netherlands, Belgium, and Luxembourg.

European Joint Float Agreement European monetary system established in April 1972 by the EC members: West Germany, France, Italy, the Netherlands, Belgium, and Luxembourg. Great Britain, Ireland, and Denmark were admitted by January 1973. The agreement allowed the member currencies to move within a 2.25 percent fluctuation band (nicknamed the snake). As a joint group, the agreement allowed these currencies to gyrate within a 4.5 percent band (nicknamed the tunnel). The entire agreement was known as the snake in the tunnel.

European Monetary Cooperation Fund EMS fund established to manage the EMS credit arrangements.

European Monetary Institute (EMI) The new European Central Bank created to govern the EMS. As of March 1994, it did not have any power over inter-EMS monetary policy.

European Monetary System European monetary system established in March 1979 by seven full members: West Germany, France, the Netherlands, Belgium, Luxembourg, Denmark, and Ireland. Great Britain did not participate in all of the arrangements and Italy joined under special conditions. New members: Greece in 1981, Spain and Portugal in 1986. Great Britain joined the Exchange Rate Mechanism in 1990. Also in 1990, West Germany became Germany as a result of its political unification with East Germany.

European Parliament The European Economic Community body in charge of reviewing and amending legislative proposals. It has the power to reject the budget proposals. It consists of 518 members who are elected. It is based in Luxembourg, but the sessions take place in Strasbourg or Brussels.

European Payment Union European entity instituted in 1950 to facilitate the inter-European settlements of international trade transactions.

European-style currency option An option that may only be exercised on the expiration date.

European Union Treaty Treaty signed by the 12 EMS members in February 1992 in the Dutch city of Maastricht, with the stated goal of forming a "closer union among the peoples of Europe."

Exchange for physical (EFP) Consists of deals executed in the cash market, outside the exchanges, for amounts equivalent to the currency futures amount, on forward outright prices valued for the futures' expiration. EFPs are generally quoted by commercial and investment banks, even during regular trading hours.

Exchange rate risk (1) Foreign exchange risk that is the effect of the continuous shift in the worldwide market supply and demand balance on an outstanding foreign exchange position. (2) Trading risk pertinent to market fluctuation.

Exercise (strike) price The price at which the underlying currency will be delivered upon exercise.

Exhaustion gap Price gap that occurs at the top or the bottom of a V-reversal formation. The trend changes direction in a rather uncharacteristically quick manner.

Expanding (broadening) triangle A triangle continuation formation that looks like a horizontal mirror image of a triangle; the tip of the triangle is next to the original trend, rather than its base. (See Triangle.)

Expiration date The delivery date.

Exponentially smoothed moving average A moving average that also takes into account the previous price information of the underlying currency.

Factory Orders An economic indicator that refers to total orders for durable and nondurable goods. The nondurable goods orders consist of food, clothing, light industrial products, and products designed for the maintenance of the durable goods.

FASB # 8 (Financial Accounting Standards Board's Statement Number 8) The original accounting rules regarding foreign exchange were standardized in 1975, which set the procedures for foreign currency translations into U.S. dollars in the consolidated balance sheets of U.S. multinational corporations.

FASB # 52 (Financial Accounting Standards Board's Statement Number 52) A complex set of rules designed in 1981, whose main objective is to move the foreign exchange P&L from current income into shareholders' equity.

Federal funds (Fed funds) Immediately available reserve balances at the federal reserves. The Fed funds are widely used by commercial banks or large corporations to lend to each other on an overnight basis. Although their level is established by the Fed, the prices fluctuate because they are traded in the market.

Federal Open Market Committee (FOMC) A committee established in 1935, through the Banking Act, to replace the Open Market Policy Conference (OMPC.) Currently active.

Federal Reserve The central bank of the United States. It was established in 1913 when Congress passed the Federal Reserve Act. The Act held that role of the Federal Reserve was "to furnish an elastic currency, to afford the means of rediscounting commercial

paper, to establish a more effective supervision of banking in the United States, and for other purposes."

Federal Reserve Board The board consists of a Governor and four other regular members. The Secretary of the Treasury and the Comptroller of the Currency are closely consulted. The 12 regional Federal Reserve Banks around the country have sufficient autonomy to manage financial conditions in their districts. They are also managed by governors.

Fedwire An automated communications and settlement system linking the Federal Reserve banks with other banks and with depository institutions.

Fence A compound option strategy that consists of either a long currency position—a long out-of-money put and a short out-of-the-money call, where the options have the same expiration date (risk conversion); or a short currency position—a short out-of-the-money put and a long out-of-the-money call, where the options have the same expiration date (risk reversal).

Fibonacci percentage retracements Price retracements of 0.382 and 0.618, or approximately 38 percent and 62 percent.

Fibonacci ratio 0.618 and 0.312.

Fibonacci sequence Takes a sequence of numbers that begins with 1 and adds 1 to it, then takes the sum of this operation (2) and adds it to the previous term in the sequence (1). Next it takes the sum of the second operation (3) and adds it to the previous term in the sequence (the sum of the first operation, i.e., 2). The Fibonacci sequence continues iterating in this manner, adding the most recent sum to the previous term, which is itself the sum of the two previous terms, etc. This yields the following series of numbers: 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 (etc.).

FINEX A currency market that is part of the New York Cotton Exchange (NYCE), the oldest futures exchange in New York. The exchange lists futures on the European Currency Unit and the USDX, a basket of ten currencies: deutsche mark, Japanese yen, French franc, British pound, Canadian dollar, Italian lira, Dutch guilder, Belgian franc, Swedish krona, and Swiss franc.

Fisher effect A theory holding that die nominal interest rate consists of the real interest rate plus the expected rate of inflation.

Flag A continuation formation that resembles the outline of a flag. It consists of a brief consolidation period within a solid and steep upward trend or downward trend. The consolidation itself tends to be sloped in the opposite direction from the slope of the original trend, or simply flat. The consolidation is bordered by a support line and a resistance line, which are parallel to each other or very mildly converging, making it look like a flag (parallelogram). The previous sharp trend is known as the flagpole. When the currency resumes its original trend by breaking out of the consolidation, the

price objective is the total length of the flagpole, measured from the breakout price level.

Floor brokers Any individuals on the exchange floor engaged in executing orders for another person. They may also trade for their own accounts, with the primary responsibility of executing the customers' orders first. Brokers are licensed by the federal government.

Floor traders (locals) Exchange members who execute their own trades by being physically present in the pit, or place for futures trading.

Foreign exchange The mechanism that values foreign currencies in terms of another currency.

Foreign exchange brokers Intermediaries among banks who bring together buyers and sellers to the market, optimize the prices they show to their customers, and do not take positions for themselves.

Foreign exchange exposure The potential effect of currency fluctuations on shareholders' equity.

Foreign exchange rate The price of one currency in terms of another.

Forward outright Foreign exchange deal that matures at a day past the spot delivery date (generally two business days).

Forward spread (forward points or forward pips) Forward price used to adjust a spot price to calculate a forward price. It is based on the current spot exchange rate, the interest rate differential, and the number of days to delivery.

Fractal geometry Geometry theory that refers to the fact that certain irregular objects have a fractal number of dimensions. In other words, an object cannot fill an integer number of dimensions.

French-West German Treaty of Cooperation A treaty signed in 1963 by President Charles de Gaulle and Chancellor Konrad Adenauer, which established that West Germany would lead economically through the cold war and France, the former diplomatic powerhouse, would provide the political leadership.

Fuzzy logic Method that attempts to weigh the quality of the patterns recognized by neural networks. Because not all patterns have equal financial significance for foreign currency forecasting, this method qualifies the degree of certainty of the results.

Gamma The rate of change of an option's delta, or the sensitivity of the delta.

Gann percentage retracements The Gann theory focuses mostly on the eighths, along with retracements in thirds.

Gap The price gap between consecutive trading ranges (i.e., the low of the current range is higher than the high of the previous range).

Genetic algorithms Method used to optimize a neural network. Trial and error are applied to an evolutionlike system, which mimics natural selection for financial forecasting purposes.

GLOBEX An electronic trading system conceived in 1987 as an after-hours trading system and geared toward global futures trading; created through a joint venture of the Chicago Mercantile Exchange (CME), the Chicago Board of Trade (CBT), and Reuters PLC.

Golden cross An intersection of two consecutive moving averages that move in the same direction and suggest that the currency will move in the same direction.

Gross Domestic Product The sum of all goods and services produced in the United States.

Gross National Product The sum of government expenditure, private investment, and personal consumption.

Gross National Product Implicit Deflator Deflator tool designed to adjust the Gross National Product for inflation. It is calculated by dividing the current dollar GNP figure by the constant dollar GNP figure.

Harami bar A "wait-and-see" two-day candlestick combination. It consists of two consecutive ranges having opposite directions, but it does not matter which one is first. The second day's range results fall within the previous day's body.

Head-and-shoulders A bearish reversal pattern that consists of a series of three consecutive rallies, such that the first and third rallies (the shoulders) have about the same height and the middle one (the head) is the highest. The rallies are based on the same support line, known as the neckline. When the neckline is broken, the price target is approximately equal in amplitude to the distance between the top of the head and the neckline.

Hedging A method used to minimize or eliminate the risk of exchange rate fluctuations.

High-low band A band created by two winding parallel lines above and below a short-term moving average that borders most price fluctuations. The moving average is based on the high and low prices. The resulting two moving averages define the edges of the band. A close above the upper band suggests a buying signal and a close below the lower band gives a selling signal.

Hoshi (star) A "wait-and see" two-day candlestick combination. It consists of a tiny body that appears the following day outside the original body. It is not important whether the star reaches the previous day's shadows. The direction of the two consecutive ranges is also irrelevant.

Households survey Consists of the unemployment rate, the overall labor force, and the number of people employed.

Implied volatility Method of measuring volatility by considering the premiums currently trading in the market and calculating the figure based on the level of the option premium.

In-the-money (ITM) call A call whose present currency price is higher than the strike price.

In-the-money (ITM) put A put whose present currency price is lower than the strike price.

Industrial Production An economic indicator that consists of the total output of a nation's plants, utilities, and mines.

Initiation margin A margin paid by the trading party in order to trade currency futures. A trader's daily loss cannot exceed the size of this margin.

Interest rate risk Amount of mismatches and maturity gaps among transactions in the foreign exchange book.

International Fisher effect Theory holding that investors will hold assets denominated in depreciating currencies only to the extent that interest rates are sufficiently high to balance the expected currency losses.

International Monetary Market The major currency futures and options on currency futures market in the world. It is a division of the Chicago Mercantile Exchange in Chicago.

Intrinsic value The amount by which an option is in-the-money. In the case of a call, the intrinsic value equals the difference between the underlying currency price and the strike price. In the case of the put, the intrinsic value equals the difference between the strike price and the present currency price, when beneficial.

Inverse head-and-shoulders A bullish reversal pattern that consists of a series of three consecutive sell-offs. Among the three consecutive sell-offs, the shoulders have approximately the same amplitude, and the head is the lowest. The formation is based on a resistance line called the neckline. After the neckline is penetrated, the target is approximately equal in amplitude to the distance between the top of the head and the neckline.

Irikubi A bearish two-day candlestick combination. It consists of a modified atekubi bar. All the characteristics are the same, except that the second day's closing high is marginally higher than the original day's low.

Island reversal An isolated range or ranges that occur at the tip of a V-formation.

ISO codes Standardized currency codes developed by the International Organization for Standardization (ISO).

J

J-Curve theory Devaluation of a currency will trigger export gains in the long term, rather than the short term, because of previous contracts, existing inventories, and behavior modification.

Jittai Body of the candlestick (See Candlestick charts.)

Journal of Commerce Index Index that consists of the prices of 18 industrial materials and supplies used in the initial stages of manufacturing, building, and energy production. It is more sensitive than other indexes, as it was designed to signal changes in inflation prior to the other price indexes.

K

Kabuse (dark cloud cover) A bearish two-day candlestick combination. It consists of a second-day long black bar that opens above the high of the previous day's blank bar and closes within the previous day's range (in an uptrend).

Karakasa (hangman at the top, hammer at the bottom) A bearish candlestick at the top of the trend, bullish at the bottom of the trend. The candlestick can be either blank or black. The body of the candlestick is very small and only half the length of the shadow.

Kenuki (tweezers) A "wait-and-see" two-day candlestick combination. It consists of consecutive bars that have matching highs or lows. In a rising market, a tweezers top occurs when the highs match. The opposite is true for a tweezers bottom.

Key reversal day The daily price range on the bar chart of the reversal day fully engulfs the previous day's range; also, the close is outside the preceding day's range.

Kirikomi A bullish two-day candlestick combination. It consists of a blank marubozu bar that opens the second day lower (than the previous low of a long black line) and closes above the 50 percent level of the previous day's range.

Knockin A plain vanilla option that does not exist until the trigger is reached. Knockout a plain vanilla option that goes away if the trigger is reached.

Koma (spinning tops) A reversal candlestick formation that consists of a short bar, either blank or black. This candlestick may also suggest lack of direction.

L

Larry Williams %R A version of the stochastics oscillator. It consists of the difference between the high price of a predetermined number of days and the current closing price; that difference in turn is divided by the total range. This oscillator is plotted on a reversed 0 to 100 scale. Therefore, the bullish reversal signals occur at under 80

percent and the bearish signals appear at above 20 percent. The interpretations are similar to those discussed under stochastics.

Leading Indicators Index An economic indicator designed to offer a six- to nine-month future outlook of economic performance. It consists of the following economic indicators: average workweek of production workers in manufacturing; average weekly claims for state unemployment; new orders for consumer goods and materials (adjusted for inflation); vendor performance (companies receiving slower deliveries from suppliers); contracts and orders for plant and equipment (adjusted for inflation); new building permits issued; change in manufacturers' unfilled orders for durable goods; change in sensitive materials prices; index of stock prices; money supply, adjusted for inflation; and the index of consumer expectations.

Line chart The line connecting single prices for each of the time periods selected.

Linearly weighted moving average A moving average that assigns more weight to the more recent closings.

Long legged shadows' doji A reversal candlestick formation that consists of a bar in which the opening and closing prices are equal.

Long straddle A compound option that consists of a long call and a long put on the same currency, at the same strike price, and with the same expiration dates. The maximum loss for the buyer is the sum of the premiums. The upside break-even point is the sum of the strike price and the premium on the straddle. The downside break-even point is the difference between the strike price and the premium on the straddle. The profit is unlimited.

Long strangle A compound option that consists of a long call and a long put on the same currency, at different strike prices, but with the same expiration dates. The profit is unlimited.

M

Ml Money supply measure that is composed of currency in circulation (outside the Treasury, the Fed, and depository institutions), traveler's checks, demand deposits, and other checkable deposits [negotiable order of withdrawal (NOW) accounts, automatic transfer service (ATS) accounts, etc.].

M2 Money supply measure that consists of Ml plus repurchase agreements, overnight Eurodollars, money market deposit accounts,

savings and time deposits (in amounts under $100,000), and balances in general accounts.

M3 Money supply measure that is composed of M2 plus time deposits over $100,000, term Eurodollar deposits, and all balances in institutional money market mutual funds.

Margin The amount of money or collateral deposited by a customer with a broker, by a broker with a clearing member, or by a clearing member with the clearinghouse in order to insure the broker or clearinghouse against loss on outstanding futures positions.

Mark-to-market Daily cash flow system used by the U.S. futures exchanges to maintain a minimum level of margin equity for a specific currency future or option by calculating the profit and loss at the end of each trading day in each contract position resulting from the price fluctuation.

Matched sale-purchase agreements Daily operations executed by the Federal Reserve, in which the Fed sells a security for immediate delivery to a dealer or a foreign central bank, with the agreement to buy back the same security at the same price at a predetermined time in the future (generally within seven days). This arrangement amounts to a temporary drain of reserves.

Matching systems Electronic systems duplicating the traditional brokers' market. A price shown by a bank is available to all traders.

Maturity date The date when a foreign exchange contract expires.

Merchandise Trade Balance An economic indicator that consists of the net difference between the exports and imports of a certain economy. The data includes food, raw materials and industrial supplies, consumer goods, autos, capital goods, and other merchandise.

Momentum An oscillator designed to measure the rate of price change, not the actual price level. This oscillator consists of the net difference between the current closing price and the oldest closing price from a predetermined period. The momentum is measured on an open scale around the zero line.

Moving average An average of a predetermined number of prices over a number of days, divided by the number of entries.

Moving average convergence-divergence (MACD) An oscillator that consists of two exponential moving averages (other inputs may be chosen by the trader as well) plotted against the zero line. The zero line represents the times the values of the two moving averages are identical. A buying signal is generated when this intersection is upward, whereas a selling signal occurs when the intersection takes place on the downside.

Moving averages oscillator An oscillator in which the values of two consecutive moving averages are subtracted from each other (the larger number of days from the previous one) and the new values are plotted.

N

Naked intervention (unsterilized intervention) A central bank intervention in the foreign exchange market that consists solely of the foreign exchange activity. This type of intervention has a monetary effect on the money supply and a long-term effect on foreign exchange.

National Association of Purchasing Managers Index (NAPM) A survey of 250 industrial purchasing managers, conducted in order to gauge the changes in new orders, production, employment, inventories, and vendor delivery speed.

National Futures Association (NFA) A self-regulatory organization that consists of futures commission merchants (FCMs), commodity pool operators (CPOs), commodity trading advisers (CTAs), introducing brokers (IBs), leverage transaction merchants (LTMs), commodity exchanges, commercial firms, and banks. It is responsible for certain aspects of the regulation of FCMs, CPOs, CTAs, IBs, and LTMs, focusing primarily on qualifications and proficiency, financial conditions, retail sales practices, and business.

Netting A process that enables institutions to settle only their net positions with one another at the end of the day, in a single transaction, not trade by trade.

Neural networks Computer systems that recognize patterns. They may be used to generate trading signals or to be part of trading systems.

Neutral spread (delta-neutral spread) A compound option strategy that consists of a long option position and a short option position whose respective total delta positions are relatively equal.

Next best price stop-loss order A stop-loss order that must be executed after the requested level is reached.

Nonfarm sector Jobs in government, manufacturing, services, construction, mining, retail and others.

Nostro account (clearing account) The account for each foreign currency in the country of origin maintained by the financial institutions for purchase and receiving (P&R) purposes.

O

Open interest The total outstanding position in a currency.

Open Market Investment Committee (OMIC) Committee established in 1923 in order to coordinate the Reserve Bank operations. It was composed of the Governors of the Federal Reserve Banks in New York, Boston, Philadelphia, Chicago, and Cleveland. Not currently active.

Open Market Policy Conference (OMPC) Committee established in 1930 to replace the OMIC. It consisted of 12 Federal Reserve Banks governors and the members of the Board. Not currently active.

Optimal options Options that refer to the most favorable rate of the underlying currency that existed (from the holder's perspective) during the life of the option. This rate becomes the strike in the case of optimal strike options, or it becomes the underlying, determining the intrinsic value when compared to a predetermined fixed strike in the case of optimal rate options. Optimals can be based on the spot rate (spot style) or the forward rate (forward style).

Option currency spread A long currency option and an offsetting short currency option, generally in the same currency.

Option writers Option sellers.

Oscillators Quantitative methods designed to provide signals regarding overbought and oversold conditions.

Out-of-the-money (OTM) call A call whose present currency price is lower than the strike price.

Out-of-the-money (OTM) put A put whose present currency price is higher than the strike price.

Overnight position limit A position kept overnight by traders.

P

Parabolic system A stop-loss technical system, based on price and time. The system was devised to supplement the inadvertent gaps of the other trend-following systems. Although not technically an oscillator, the parabolic system can be used with the oscillators. SAR stands for stop-and-reverse. The stop moves daily in the direction of the new trend. The built-in acceleration factor pushes the SAR to catch up with the currency price. If the new trend fails, the SAR signal will be generated. The name of the system is derived from its parabolic shape, which follows the price gyrations. It is represented by a

dotted line. When the parabola is placed under the price, it suggests a long position. Conversely, a price above the parabola indicates a short position.

Pennants A continuation formation that resembles the outline of a pennant. It consists of a brief consolidation period within a solid and steep upward trend or downward trend. The consolidation itself tends to be sloped in the opposite direction from the slope of the original trend, or simply flat. The consolidation is bordered by a support line and a resistance line, which converge, creating a triangle. The previous sharp trend is known as the pennant pole. When the currency resumes its original trend by breaking out of the consolidation, the price objective is the total length of the pole, measured from the breakout price level.

Personal Income An economic indicator that consists of the income received by individuals, nonprofit institutions, and private trust funds. Some of the components of this indicator are wages and salaries, rental income, dividends, interest earnings, and transfer payments (Social Security, state unemployment insurance, and veteran's benefits).

Philadelphia Stock Exchange (PHLX) The oldest U.S. securities exchange, it offers currency futures and options on currency futures.

Point-and-figure chart A type of chart that plots price activity without regard to time. When the currency moves up, the fluctuations are marked with X's. The moves on the downside are plotted with O's. The direction on the chart only changes if the currency reverses by a certain number of pips.

Premium The price of the option paid by the buyer to the seller.

Premium forward spread Forward price that is added to a spot price to calculate a forward price. It reflects the fact that the foreign interest rate is higher than the U.S. interest rate for that particular period.

Prime rate The rate that commercial banks charge customers, which is based on the discount rate.

Producer Price Index An economic indicator that gauges the average changes in prices received by domestic producers for their output at all stages of processing.

Purchasing power parity (PPP) Model of exchange rate determination stating that the price of a good in one country should equal the price of the same good in another country, exchanged at the current rate (the law of one price).

Put-call-forward exchange parity (PCFP) theory A relationship between a call option and a put option established through the forward market. The theory holds that the option of buying the domestic currency with a foreign currency at a certain price X is equivalent to the option of selling the foreign currency with the domestic currency at the same price X. Therefore, the call option in the domestic currency becomes the put option in the other, and vice versa.

Put ratio backspread A compound option strategy that consists of short puts with a higher strike price and more long puts with a lower strike price. The profit is twofold. The maximum upside profit potential consists of the total premium received. The downside profit potential is unlimited. The maximum loss potential occurs when the currency price reaches the lower strike price at expiration.

Random walk theory An efficient market hypothesis, stating that prices move randomly versus their intrinsic value. Therefore, no one can forecast market activity based on the available information.

Rate of change A momentum oscillator in which the oldest closing price is divided into the most recent one.

Ratio call spread A compound option strategy that consists of a number of long calls with lower strike prices and a larger number of short calls with a higher strike price. The maximum profit is realized when the currency price is at the higher strike price. This combination has two break-even points. The downside break-even point consists of the sum of the lower strike price and the debit, divided by the number of long calls. The upside break-even point consists of the sum of the higher strike price and the maximum profit potential, divided by the number of naked calls. The maximum loss is twofold. The maximum downside risk is the net premium. The upside risk is unlimited.

Ratio put spread A compound option strategy that consists of a number of long puts with higher strike prices and a larger number of short puts with a lower strike price. The maximum profit is realized when the currency price is at the lower strike price. This combination has two break-even points. The downside break-even point consists of the difference between the lower strike price and the maximum profit potential, divided by the number of naked puts. The upside break-even point consists of the difference between the higher strike price and the debit, divided by the number of long calls. The maximum loss is twofold. The maximum downside risk is unlimited. The upside risk is the net premium.

Ratio spread A compound option strategy in which the number of long options is different from the number of short options.

Rectangle A continuation formation that resembles the outline of a parallelogram. The price objective is the height of the rectangle.

Regulation Q Regulation passed by the Federal Reserve that prohibited payment of interest on demand deposits and prescribed maximum rates banks could pay on time deposits. These ceilings had been imposed since 1933 by the U.S. government. The regulation is not currently in effect.

Relative Strength Index An oscillator that measures the relative changes between the higher and lower closing prices. The RSI is plotted on a 0 to 100 scale. The 70 and 30 values are used as warning signals, whereas values above 85 indicate an overbought condition (selling signal), and values under 15 suggest an oversold condition (buying signal).

Replacement risk A form of credit risk that holds that counterparties of failed banks will find their books unbalanced to the extent of their exposure to the insolvent party. In order to rebalance their books, these banks must enter new transactions.

Repurchase agreements (repos) Daily operations executed by the Federal Reserve. A repurchase agreement between the Federal Reserve and a government securities dealer consists of the Fed's purchasing a security for immediate delivery, with the agreement to sell the same security back at the same price at a predetermined date in the future (usually within 15 days). This arrangement amounts to a temporary injection of reserves in the banking system.

Resistance level The peaks representing the price level at which supply exceeds demand.

Reversal patterns Patterns that occur at the end of the trend, signaling the trend change.

Rollover (tomorrow/next or torn/next) swap A swap designed for spot trades' maintenance. It was designed to change the old spot date to the current spot date (on the front office's side) and to enable the bank to make the payments to the counterparty (on the back office's side).

Rounded bottom A bullish reversal pattern that consists of a very slow and gradual change in the direction of the market.

Rounded top (saucer) A bearish reversal pattern that consists of a very slow and gradual change in the direction of the market.

Runaway or measurement gap A price gap that occurs within solid trends. It is also called a measurement gap because it tends to occur about midway through the life of a trend.

S

Sangu (three gaps) A reversal candlestick signal applicable in either a steeply rising or falling market, when the daily limits will break the trading. The theory holds that after the third gap, the market will reverse at least to the second gap.

Sanpei (three parallel bars) A reversal candlestick combination. It refers to the similarity in direction and velocity of three consecutive bars, as otherwise all the entries are parallel. They generate a reversal formation after an extended rally. When bullish, the formation is known as the three soldiers. When bearish, the name is the three crows.

Sanpo (three methods) A candlestick combination that advises that retracements are in order before the market will reach new highs and new lows.

Sansen (three rivers) method A reversal candlestick combination. It consists of three daily entries. The first day is a long blank bar (a bullish move), followed by a bullish but short-range one-day island. The third entry is a bearish long black line.

Sanzan (three mountains) A reversal candlestick combination. It consists of a triple-top formation.

Sashikomi A bearish two-day candlestick combination. It consists of a modified irikubi bar. The difference is that the opening of the second day's blank bar is much lower than that of the irikubi bars. Despite the wider gap thus formed, the blank candlestick closes only slightly above the previous day's low.

Settlement risk A form of credit risk that may occur due to the time zones separating the nations. Payment may be made to a party who will declare insolvency (or be declared insolvent) immediately after receipt, but prior to executing its own payments.

Shitakage Lower shadow of the candlestick. (See Candlestick chart.)

Short straddle A compound option that consists of a short call and a short put on the same currency, at the same strike price, and with the same expiration dates. The maximum profit consists of the combined premium of the two individual options. The loss occurs when the level of the premium is overpassed by the currency swing, and the loss is unlimited.

Short strangle A compound option that consists of a short call and a short put on the same currency, with the same expiration dates, but with different strike prices. The maximum profit consists of the combined premium of the two individual options. The loss is unlimited.

Simple moving average or arithmetic mean An average of a predetermined number of prices over a number of days, divided by the number of entries.

Slow stochastics A version of the original stochastic oscillator. The new, slow %K line consists of the original %D line. The new, slow %D line formula is calculated from the new %K line.

Snake The nickname of the European Joint Float Agreement's 2.25 percent fluctuation band for the European currencies against each other, derived from its curvaceous movement.

Speedlines Support or resistance lines that divide the range of the trend into thirds on a vertical line. The two resulting speedlines are plotted by using as coordinates the origin and the 1/3 and 2/3 prices respectively.

Spot deal A foreign exchange deal that consists of a bilateral contract between a party delivering a certain amount of a currency against receiving a certain amount of another currency from a second counterparty, based on an agreed exchange rate, within two business days of the deal date. The exception is the Canadian dollar, in which the spot delivery is executed within one business day.

Spot next (S/N) A foreign exchange deal that matures one business day past the spot date, or three business days.

Sterilized intervention A central bank intervention in the foreign exchange market that consists of a sale of government securities that offsets the reserve injection which occurs due to the foreign exchange intervention. The money market activity sterilizes the impact of the foreign exchange intervention on the money supply. Sterilized interventions have a short- to medium-term effect.

Stochastics Oscillators that consist of two lines called %K and %D. Visualize %K as the plotted instrument and %D as its moving average. The resulting lines are plotted on a 1 to 100 scale. Just as in the case of the RSI, the 70 percent and 30 percent values are used as warning signals. The buying (bullish reversal) signals occur at under 10 percent and the selling (bearish reversal) signals come into play at above 90 percent.

Strike price See Exercise price.

Support level The troughs representing the level at which demand exceeds supply.

Swap deal A foreign exchange deal that consists of a spot deal and a forward outright deal. A party simultaneously buys and sells (or sells and buys) the same amount of a currency with another counterparty; the two legs of the transaction mature on different dates (one of the dates being the spot date) and are traded at different exchange rates (one of the exchange rates being the spot rate). Exceptions may be made with regard to the value dates (forward-forward) and amount (different amounts).

SWIFT (Society of Worldwide Interbank Financial Telecommunications) An automated system set up to send standardized payment instructions for foreign currencies among international banks.

Swing Index (SI) A momentum oscillator that is plotted on a scale of -100 to +100. The spikes reaching the extremes suggest reversal.

Symmetrical triangle A triangle continuation formation in which the support and resistance lines are symmetrical. (See Triangle.)

Synthetic call option A combination of a long currency and a long currency put. Synthetic put option A combination of a short currency and a long currency call.

Tan Book An economic report prepared by the Federal Reserve for FOMC meetings.

Tankan Economic Survey The Japanese equivalent of the American Tan Book, which is released by the Federal Reserve. The survey is released on a quarterly basis.

Technical analysis The chart study of past behavior of commodity prices for purposes of forecasting their future performance.

Theory of elasticities A model of exchange rate determination stating that the exchange rate is simply the price of foreign exchange that maintains the BOP in equilibrium. The degree to which the exchange rate responds to a change in the trade balance depends entirely on the elasticity of demand to a change in price.

Theta (T) or time decay Occurs as the very slow or nonexistent movement of the currency triggers losses in the option's theoretical value.

Three Buddha top formation A reversal candlestick combination. It consists of a head-and-shoulders formation, or three consecutive rallies in which the first and the third are of approximately the same height, and the second is the highest.

Threshold of divergence A safety feature for the EMS that creates an emergency exit for currencies that become the singular focus of various adverse forces. The threshold of divergence indicates when the specific country with the pressured currency should take additional steps other than simple central bank intervention in the foreign exchange markets.

Time decay See Theta.

Time value (time premium or extrinsic value) The difference between the option premium and its intrinsic value.

Tohbu (gravestone doji) A reversal candlestick formation.

Tomorrow/next (T/N) deal A foreign exchange deal that matures the next business day, or one day prior to the spot date.

Tonbo (dragonfly) A reversal candlestick formation.

Traditional (Charles Dow) percentage retracements Occur at 33 percent, 50 percent, and 66 percent.

Transaction exposure Potential profit and loss generated by current foreign exchange transactions.

Translation exposure The risk of change of the consolidated corporate earnings as a result of past volatility in the base currency.

Trend The general direction of the market, as shown by the significant peaks and troughs of the currency fluctuations.

Trendline A straight line connecting the significant highs (peaks) in a downtrend, and the significant lows (troughs) in an uptrend.

Triangle A continuation formation that resembles the outline of a pennant, but without the pole. It consists of a brief consolidation period within a solid and steep upward trend or downward trend. The consolidation itself tends to be sloped in the opposite direction from the slope of the original trend, or simply flat. The consolidation is bordered by converging support and resistance lines, making it look like a triangle. When the currency resumes its original trend by breaking out of the consolidation, the price objective is the height of the triangle, measured from the breakout price level.

Triple bottom A bullish reversal pattern that consists of three bottoms of approximately equal heights. A parallel—resistance—line is drawn against a support line, which connects these tops. The break of the resistance line generates a move equal in size to the price difference between the average height of the bottoms and the resistance line.

Triple top A bearish reversal pattern that consists of three tops of approximately equal heights. A parallel—support—line is drawn against a resistance line, which connects these tops. The break of the support line generates a moveequal in size to the price difference between the average height of the topsand the support line. |

TRIX Index An oscillator that consists of a one-day ROC calculation of a triple exponentially smoothed moving average of the closing price.

Tunnel The nickname of the European Joint Float Agreement's total fluctuation band of the European currencies.

U

Unemployment Rate An economic indicator released as a percentage that is calculated as the ratio of the difference between the total labor force and the employed labor force, divided by the total labor force.

Upside gap tasuki Bullish two-day candlestick combination. It consists of a second-day black bar that closes an overnight gap opened on the previous day by a blank bar.

Upward breakout of a bearish resistance line Bullish point-and-figure chart formation that confirms the currency's breakout of a resistance line the third time it reaches it. The resistance line is sloped downward.

Upward breakout of a bullish resistance line Bullish point-and-figure chart formation that confirms the currency's breakout of a resistance line the third time it reaches it.

Upward breakout from a consolidation formation Bullish point-and-figure chart formation that resembles the flag formation. A valid upside breakout from the consolidation formation has a price target equal in size to the length of the previous uptrend.

USDX Currency index that consists of the weighted average of the prices of ten foreign currencies against the U.S. dollar: deutsche mark, Japanese yen, French franc, British pound, Canadian dollar, Italian lira, Dutch guilder, Belgian franc, Swedish krona, and Swiss franc.

Uwakage Upper shadow of the candlestick. (See Candlestick chart.)

V

Value at risk The expected loss from an adverse market movement, with a specified probability over a particular period of time.

Variation (maintenance) margin Margin paid by the trading party in order to fully cover any unrealized loss. Any trader holding an overnight position with a negative P&L must post it in cash. It must be kept on deposit at all times.

Vega The sensitivity of the theoretical value of an option to a change in volatility.

Velocity of money The rate at which money is turning over on an annual basis to facilitate income transactions.

Vertical bear call spread A compound option strategy of buying two options with a common expiration date; one option is a short call with a lower strike price and the other is a long call with a higher strike price. The seller's maximum profit is limited to the premium paid for the two options. The break-even point is calculated as the sum of the lower strike price and the total premium. The maximum loss consists of the dollar difference between the two strike prices, minus the total premium received.

Vertical bear put spread A compound option strategy of buying two options with a common expiration date; one option is a long put with a higher strike price and the other is a short put with a lower strike price. The buyer's maximum profit consists of the dollar difference between the two strike prices, minus the total premium paid. The break-even point is calculated as the difference between the higher strike price and the total premium. The maximum loss is limited to the premium paid for the two options.

Vertical bear spread An option combination whose theoretical value will decline to a predetermined maximum profit if the price of the underlying currency declines and whose maximum loss is also predetermined.

Vertical bull call spread A compound option strategy of buying two options with a common expiration date; one option is a long call with a lower strike price and the other is a short call with a higher strike price. The buyer's maximum profit consists of the dollar difference between the two strike prices, minus the total premium paid. The break-even point is calculated as the sum of the lower strike price and the total premium. The maximum loss is limited to the premium paid for the two options.

Vertical bull put spread A compound option strategy of buying two options with a common expiration date; one option is a long put with a lower strike price and the other is a short put with a higher strike price. The buyer's maximum profit consists of the net premium paid for the two options (one paid, the other received). The break-even point is calculated as the difference between the higher strike price and the total premium received. The maximum loss is limited to the dollar difference between the two strike prices, minus the total premium received.

Vertical bull spread An option combination whose theoretical value will rise to a predetermined maximum profit if the price of underlying currency rises, and whose maximum loss is also predetermined.

Vertical spread A compound option that consists of two similar options (i.e., calls or puts), one being bought and the other sold, on the same currency and with the same expiration date, but with different strike prices.

V-formation (spike) Reversal formation that shows sudden trend changes and is accompanied by heavy trading volume. This pattern may include a key reversal day, or an island reversal and an exhaustion gap.

Volatility The degree to which the price of currency tends to fluctuate within a certain period of time.

Volume The total amount of currency traded within a period of time, usually one day.

Vostro account A vostro account from the point of view of the counterparty.

Wedge A continuation formation that resembles the outline of a pennant, but without the pole. It consists of a brief consolidation period within a solid and steep upward trend or downward trend. The consolidation is sharply angled in the opposite direction from the slope of the original trend. The consolidation is bordered by a support line and a resistance line that converge, making it look like a sharply angled triangle. When the currency resumes its original trend by breaking out of the consolidation, the price objective is the height of the wedge, measured from the breakout price level.

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